TOXNET

Toxicology and Environmental Health Information

from the National Library of Medicine (NLM)

and Other Sites

October 2005

Presented by

NLM's Toxicology and Environmental Health Information Program

part of the Division of Specialized Information Services

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Class Schedule

Part I	Introduction	9:00 - 9:15
Part II	ChemIDplus	9:15 - 9:45
	Exercises (II)	9:45 -10:15
	Break	10:15 -10:30
Part III	TOXNET Overview, HSDB & Related Files	10:30 -11:30
	Exercises (III)	11:30 -12:00
	Lunch	12:00 - 1:00
Part IV	TOXLINE and Other Bibliographic Files	1:00 - 1:30
Part V	TRI, Specialty Files, New Initiatives	1:30 - 2:15
	Exercises (IV, V)	2:15 - 2:45
	Break	2:45 - 3:00
Part VI	Non-NLM Resources	3:00 - 3:30
	Exercises (VI)	3:30 - 4:00

Class Roster

Name	Organization

Part I

Introduction

Toxicology and Environmental Health Information Program (TEHIP)

Background

- Poisons recognized throughout time.
- Socrates - hemlock. Cleopatra - asp.
- Lucretia Borgia
- Harvey W. Wiley's Poison Squad – 1903
- The Jungle (1906) Upton Sinclair – lack of hygiene in the meat-packing industry
- Food and Drugs Act (1906) – prohibited adulterated or misbranded items
- Federal Food, Drug and Cosmetic Act (1938) – enhanced safety requirements for drugs
- Drug Amendments (1962) – effectiveness required for drugs
- Silent Spring (1962) Rachel Carson – sparked public awareness about hazards of synthetic chemicals
- President's Science Advisory Committee (1966) – "Report on the Handling of Toxicological Information"
- TEHIP Created (1967)
- Situated within NLM's Division of Specialized Information Services

TEHIP Mission

- Provide selected core toxicology and environmental health information resources and services
- Facilitate access to national and international toxicology and environmental health information resources
- Strengthen the information infrastructure of toxicology and environmental health

So…TEHIP

- Builds and/or makes available free online Web-based databases
- Creates other Web-based resources
- Collaborates with government agencies and others
- Addresses a spectrum of user needs, from the personal to the professional
- Is active in public training and outreach

TEHIP Databases

- TOXNET System of Databases (including ChemIDplus and Specialty Databases)
- DIRLINE (directory of organizations)

Additional TEHIP Resources

- Special Topic Guides – arsenic, biological & chemical warfare agents, etc.
- Publications (including Glossary of Terms Used in Toxicology)
- ALTBIB - Alternatives Bibliography
- Toxicology Tutor

Other Relevant NLM Information

- PubMed/MEDLINE
- MedlinePlus (consumer health, includes drug information)
- Clinical Trials
- NLM Gateway – Multi-File Searching – Planned to go across all NLM Files

United States
National Library of Medicine
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SIS Specialized Information Services

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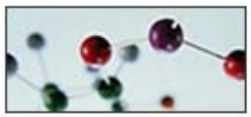
The Specialized Information Services (SIS) Division of the National Library of Medicine (NLM) is responsible for information resources and services in toxicology, environmental health, chemistry, HIV/AIDS, and specialized topics in minority health.

Environmental Health & Toxicology

Databases and other resources related to toxicology and environmental health
Features TOXNET



Chemical Information

Databases and other resources designed to help search for information by chemical name or structure
Features ChemIDplus: Lite and Advanced

HIV/AIDS

Links to journal literature, clinical trials and treatment information, meeting abstracts, and other scientific and consumer-related resources

Outreach Activities & Resources

Programs, resources and web sites for minority and other specific populations

Directory of Health Organizations

Features DIRLINE and Health Hotlines

More to Explore

SIS News
Staff Directory
Fact Sheets
WISER
TOXMAP
TOXNET FAQs
Hurricane Katrina: Links to Health Information

Additional NLM Sites

MEDLINE/PubMed®
Search journal literature

MedlinePlus®
Consumer health information

NLM Gateway
Search multiple NLM databases

Health Services Research & Public Health Information Programs

Bookshelf
Search selected biomedical books

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Environmental Health and Toxicology
SIS Specialized Information Services

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Environmental Health and Toxicology

Topics
- Chemicals and Drugs
- Diseases and the Environment
- Environmental Health
- Occupational Safety and Health
- Poisoning
- Risk Assessment and Regulations
- Toxicology

Especially for
- The Public
- Researchers/Scientists
- Health Professionals
- Students/Educators
- Emergency Responders
- Hurricanes: Links to Health Information

Reference Tools
- A to Z List of Resources
- Database Manual
- News
- Calendar of Events

Listservs:
- NLM-TOX-ENVIRO-HEALTH-L
- WISER - Wireless Information System for Emergency Responders
- MedlinePlus® Environmental Health e-mail Announcement List

- More Chemical Information
- Publications and Reference Materials
- List of NLM Databases and Resources

More to Explore
- Tox Town
- Enviro-Health Links
- WISER
- ALTBIB
- Toxicology Tutorials
- Toxicology Web Links
- Education and Career Links
- Fact Sheets
- Database Descriptions
- MedlinePlus: Consumer Environmental Health Information
- DIRLINE®
- Public Health Information
- Health Services Research & Public Health Information Programs
- Bookshelf

TOXNET®

Collection of databases on hazardous chemicals, toxic releases, and environmental health

Search TOXNET for:
Search

Search a single database:

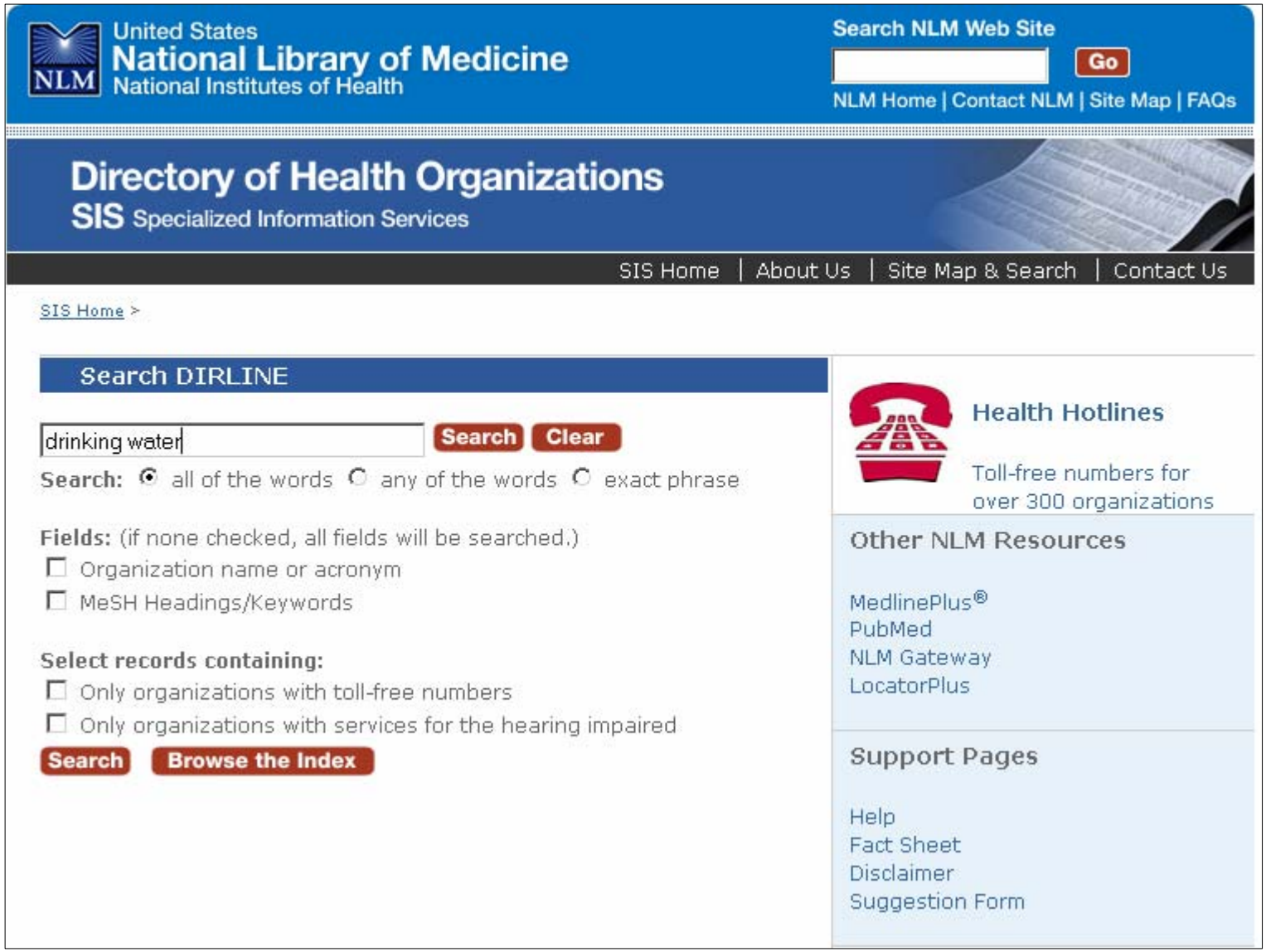
ChemIDplus	IRIS
CCRIS	ITER
DART	TOXLINE
GENE-TOX	TOXMAP
Haz-Map	TRI
Household Products	
HSDB	

TOXNET FAQs

Featured Site

New Enviro-Health Links resource on Hurricane Katrina: Links to Health Information

National Institute of Environmental Health Sciences: The primary NIH organization for environmental health research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Search DIRLINE
drinking water
Search
Clear
Search: all of the words any of the words exact phrase
Fields: (if none checked, all fields will be searched.)
Organization name or acronym
MeSH Headings/Keywords
Select records containing:
Only organizations with toll-free numbers
Only organizations with services for the hearing impaired
Search
Browse the Index
Health Hotlines
Toll-free numbers for over 300 organizations
Other NLM Resources
MedlinePlus®
PubMed
NLM Gateway
LocatorPlus
Support Pages
Help
Fact Sheet
Disclaimer
Suggestion Form


Directory of Health Organizations
SIS Specialized Information Services
SIS Home | About Us | Site Map & Search | Contact Us
DIRLINE Search Results
SIS Home
DIRLINE
Save Checked Items
Sort
Details
History
Download
Modify Search
New Search
Browse Index
SIS Home
MEDLINEplus Home
drinking water
Search
Clear
Items 1 through 20 of 42
Pages: 1 2 3
Organization Names are sorted in relevancy ranked order.
Select Record
Organization Name
1 Office of Drinking Water - Virginia Department of Health (ODW)
2 Drinking Water Program - Department of Environmental Protection - Massachusetts State Government (DWP)
3 National Drinking Water Clearinghouse - National Environmental Service Center - West Virginia University (NDWC)
4 Office of Ground Water and Drinking Water - U.S. Environmental Protection Agency (OGWDW)
5 Drinking Water Program - Division of Drinking Water and Environmental Management - California Department of Health Services - California State Government (DWP)
6 Division of Water Supply Protection - Massachusetts Department of Conservation and Recreation
7 Water Supply and Water Resources Division - National Risk Management Research Laboratory - U.S. Environmental Protection Agency (WSWR)
8 Office of Water Quality - Indiana Department of Environmental Management - Indiana State Government (OWQ)
9 Office of Drinking Water Quality - Rhode Island Department of Health

MedlinePlus
Trusted Health Information for You

A service of the U.S. NATIONAL LIBRARY OF MEDIC
and the NATIONAL INSTITUTES OF HEAL

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Poisoning, Toxicology, Environmental Health Topics

- Air Pollution
- Anthrax
- Arsenic
- Asbestos
- Asbestosis see Asbestos

- Biodefense and Bioterrorism
- Biological Weapons see Biodefense and Bioterrorism
- Bioterrorism see Biodefense and Bioterrorism
- Campylobacter see Food Contamination and Poisoning
- Carbon Monoxide Poisoning

- Cell Phones see Electromagnetic Fields
- Chemical Weapons
- Cleaning Products see Household Products
- Drinking Water
- EMF see Electromagnetic Fields

- Electromagnetic Fields
- Environmental Health

ClinicalTrials.gov
A service of the U.S. National Institutes of Health

Linking patients to medical research
Developed by the National Library of Medicine

Home | Search | Browse | Resources | Help | What's New | About

Browse : By Condition : By Disease Heading : **Injuries, Poisonings, and Occupational Diseases**

☐ **Include trials that are no longer recruiting patients.**

1. Abnormalities, Radiation-Induced (1 recruiting study)
2. Alcohol-Induced Disorders (7 recruiting studies)
3. Alcohol-Related Disorders (53 recruiting studies)
4. Alcoholic Intoxication (2 recruiting studies)
5. Alcoholism (49 recruiting studies)
6. Amphetamine-Related Disorders (4 recruiting studies)
7. Amputation, Traumatic (2 recruiting studies)
8. Arm Injuries (10 recruiting studies)
9. Asphyxia (4 recruiting studies)
10. Athletic Injuries (2 recruiting studies)
11. Back Injuries (3 recruiting studies)
12. Berylliosis (1 recruiting study)
13. Birth Injuries (1 recruiting study)
14. Bites and Stings (1 recruiting study)
15. Botulism (1 recruiting study)

Gateway

Your Entrance to the Knowledge Resources of the National Library of Medicine

asthma pollution | Search | Clear | Help | FAQ | What's New | About

Term Finder | Limits/Settings | Search Details | History | Locker | Contact Us

Results Summary: 6130 records found [Bookmark this Search]

Bibliographic Resources

2631 **MEDLINE/PubMed** - journal citations, abstracts	2846 **TOXLINE Special** - toxicology citations
17 **NLM Catalog** - books, AVs, serials	2 **Meeting Abstracts**

Consumer Health Resources

71 **MedlinePlus** - Health Topics	2 **MedlinePlus** - Other Resources
2 **MedlinePlus** - Drug Information	2 **ClinicalTrials.gov**
150 **MedlinePlus** - Medical Encyclopedia	3 **DIRLINE** - Directory of Health Organizations
8 **MedlinePlus** - Current Health News	0 **Genetics Home Reference**

Other Information Resources

9 **HSRProj** - Health Services Research Projects	386 **HSDB** - Hazardous Substances Data Bank
1 **OMIM** - Online Mendelian Inheritance in Man	

Part II

ChemIDplus

ChemIDplus

- Chemical Identification File
- Chemical Dictionary/Directory File for chemicals cited in MEDLARS Files & outside resources
- Contains over 379,000 chemical records
- Structural Data for over 257,000 records
- Direct Link/Searches of MEDLINE, TOXNET, and other resources

ChemIDplus

The ChemIDplus file is a database with two different applications:

- ChemIDplus Lite at:
  http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

- ChemIDplus Advanced at:
  http://chem.sis.nlm.nih.gov/chemidplus/

ChemIDplus Lite vs. Advanced

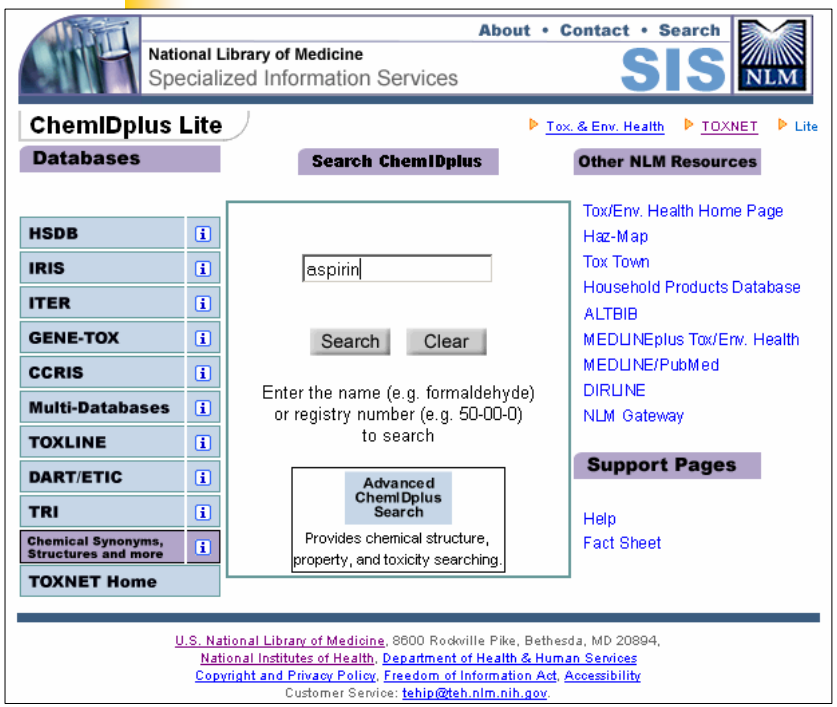
Lite

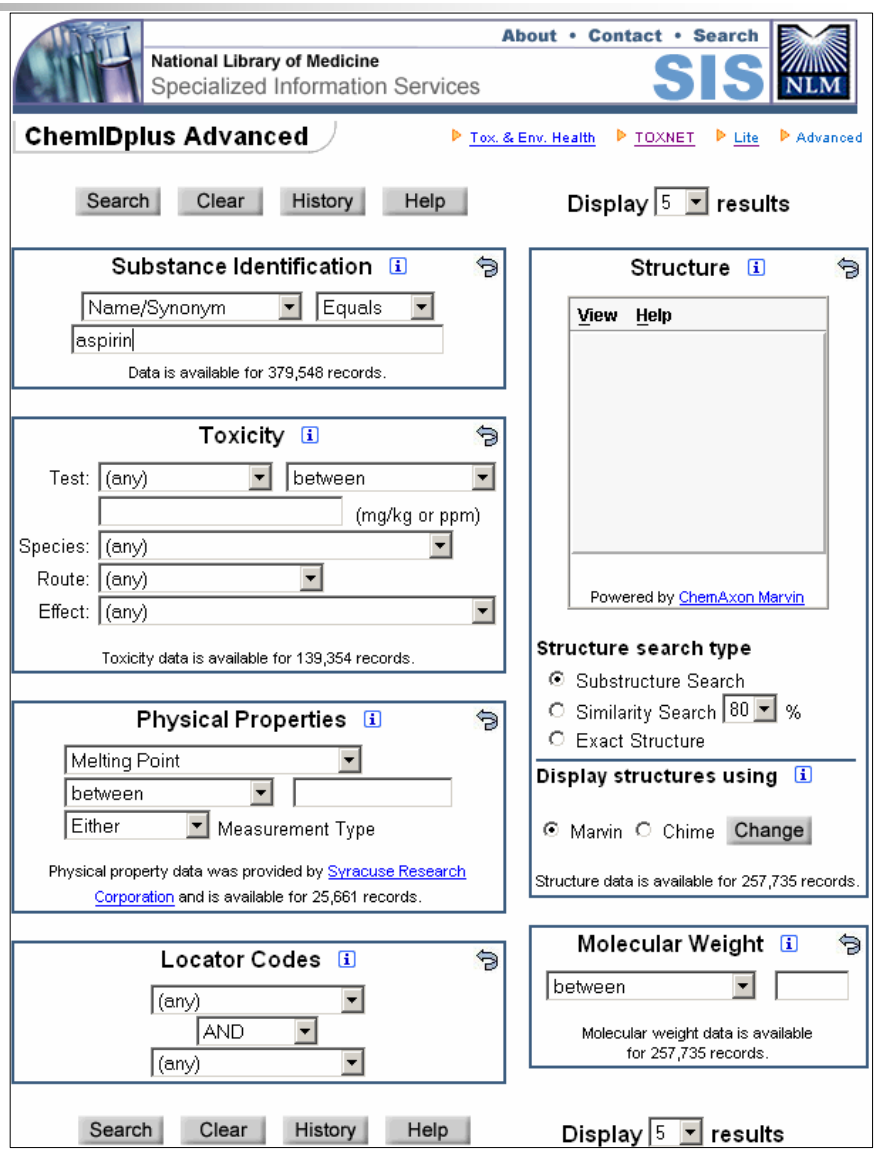
- Basic searching on chemical name/synonym or registry number
- One input box for search term
- Right truncation (“starts with”) is available by using (*) at the end of a search term
- View chemical structure as a GIF image without a plug-in or special display software
- Spell checker

Advanced

- Advanced searching on chemical name/synonym, registry number, molecular formula, classification code, locator code, toxicity, chemical property, structure, or molecular weight
- Qualify search term with “equals”, “starts with”, or “contains”
- Six areas of input with drop down boxes in each area
- View and draw structures using a plug-in or special display software
- Spell checker

Lite vs. Advanced Main Query Page



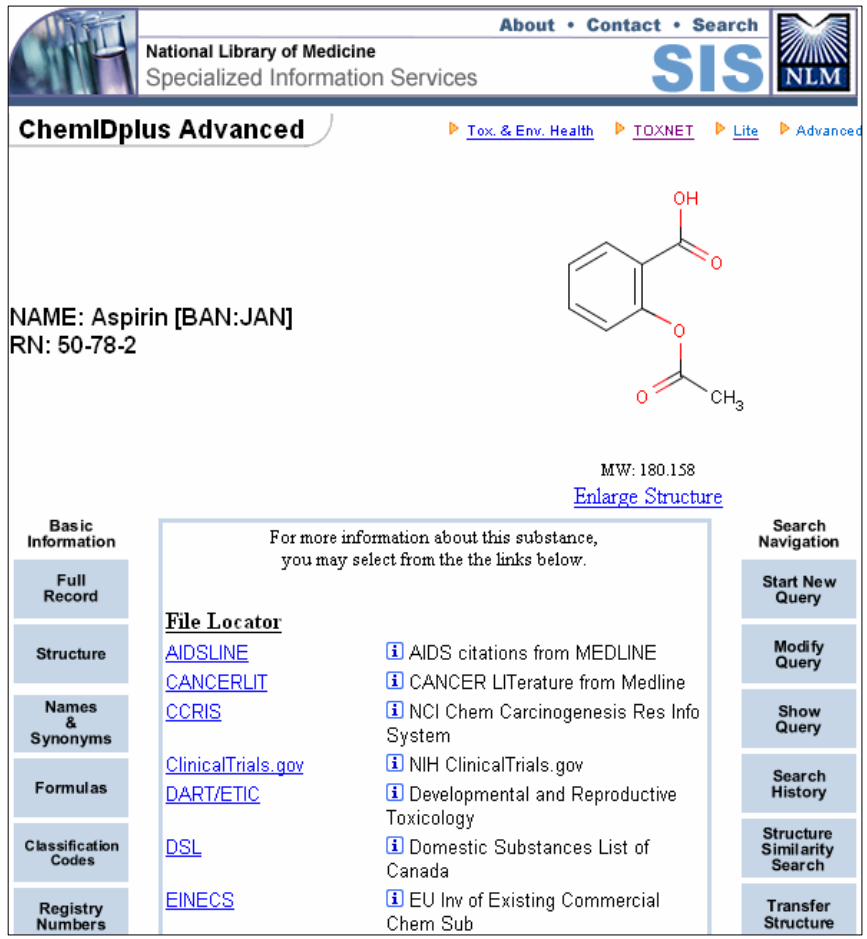


Lite vs. Advanced Results Page

Two Major Differences

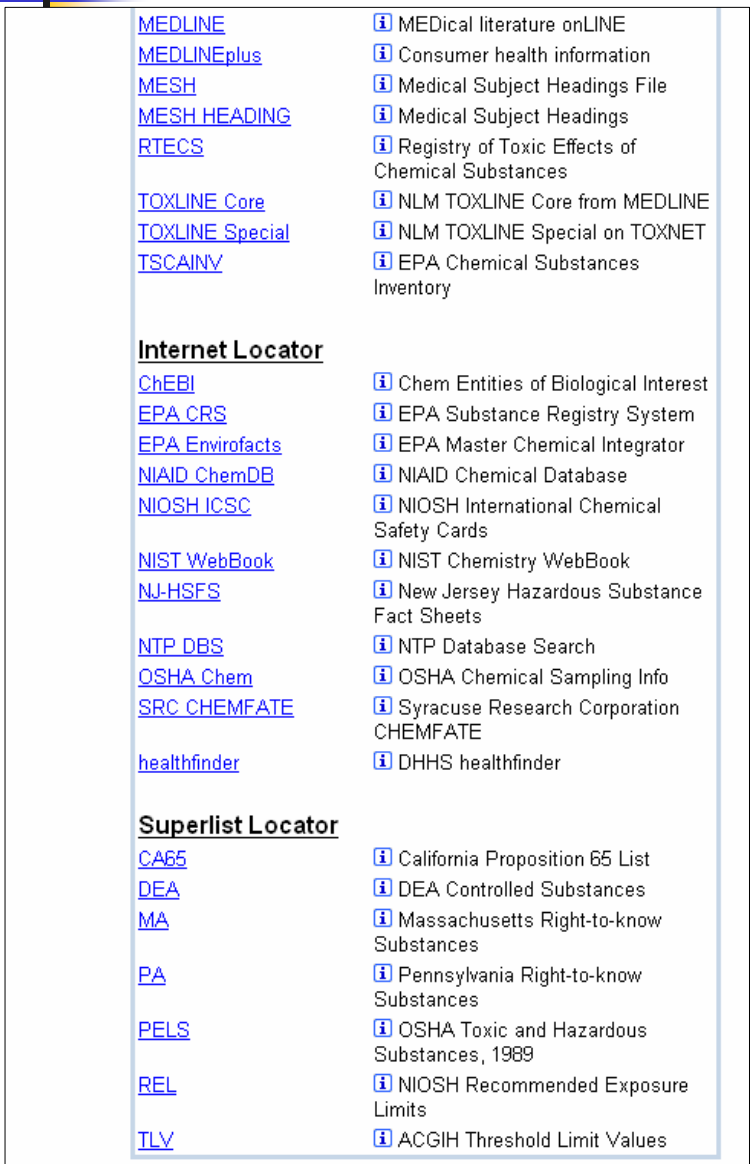
- Basic Information and Search Navigation buttons differ in the two applications.
- Toxicity and Physical Property data follow the locator listing in the advanced full record display not in ChemIDplus Lite. The Lite full record ends with the locator listings.

Lite vs. Advanced Results Page



Basic Information and Search Navigation buttons differ in the two applications

Lite vs. Advanced Results Page (cont'd)



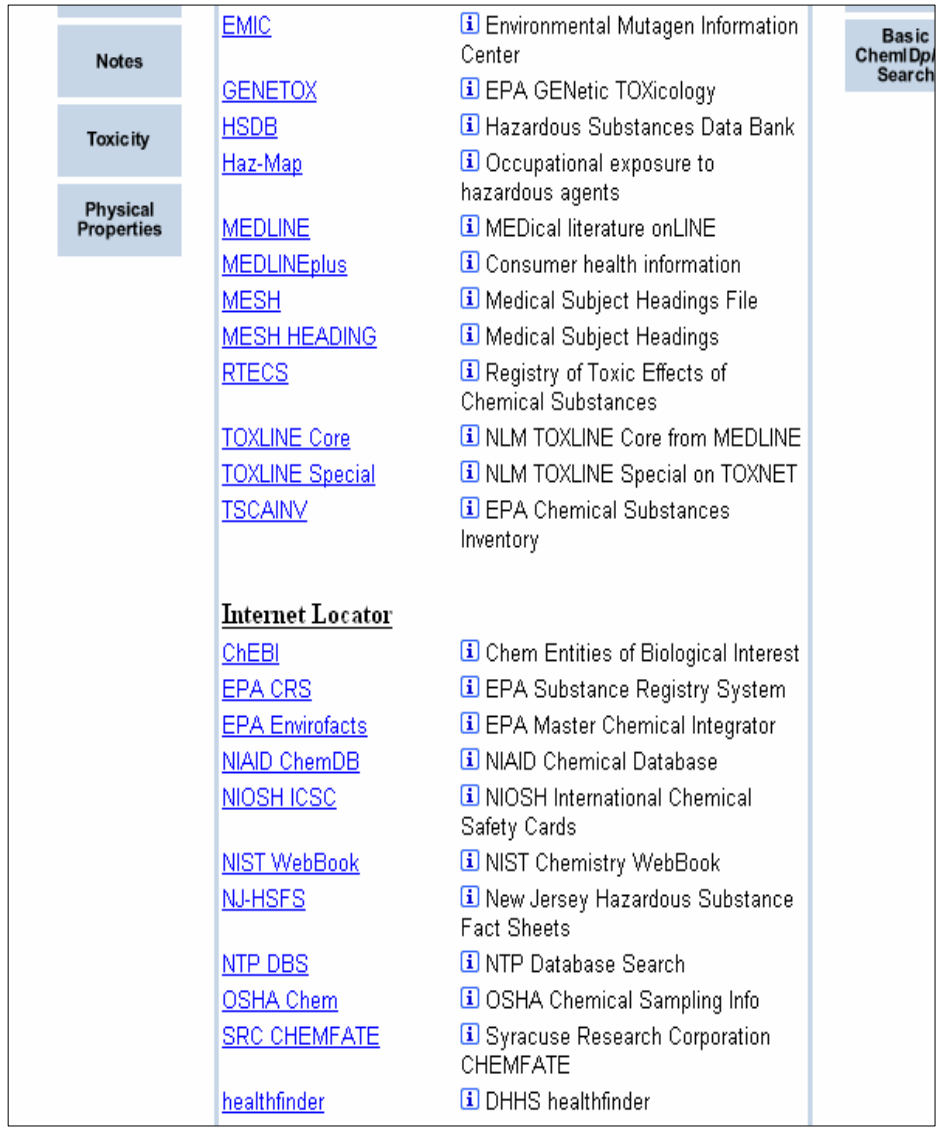
MEDLINE	MEDical literature onLINE
MEDLINEplus	Consumer health information
MESH	Medical Subject Headings File
MESH HEADING	Medical Subject Headings
RTECS	Registry of Toxic Effects of Chemical Substances
TOXLINE Core	NLM TOXLINE Core from MEDLINE
TOXLINE Special	NLM TOXLINE Special on TOXNET
TSCAINV	EPA Chemical Substances Inventory

Internet Locator

ChEBI	Chem Entities of Biological Interest
EPA CRS	EPA Substance Registry System
EPA Envirofacts	EPA Master Chemical Integrator
NIAID ChemDB	NIAID Chemical Database
NIOSH ICSC	NIOSH International Chemical Safety Cards
NIST WebBook	NIST Chemistry WebBook
NJ-HSFS	New Jersey Hazardous Substance Fact Sheets
NTP DBS	NTP Database Search
OSHA Chem	OSHA Chemical Sampling Info
SRC CHEMFATE	Syracuse Research Corporation CHEMFATE
healthfinder	DHHS healthfinder

Superlist Locator

CA65	California Proposition 65 List
DEA	DEA Controlled Substances
MA	Massachusetts Right-to-know Substances
PA	Pennsylvania Right-to-know Substances
PELS	OSHA Toxic and Hazardous Substances, 1989
REL	NIOSH Recommended Exposure Limits
TLV	ACGIH Threshold Limit Values



Notes

Toxicity

Physical Properties

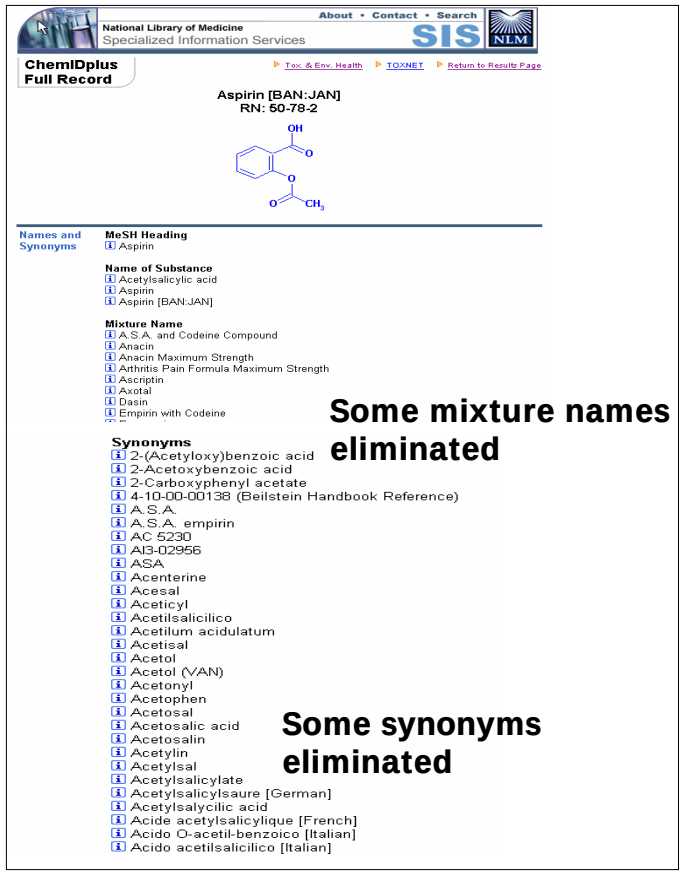
EMIC	Environmental Mutagen Information Center
GENETOX	EPA GENetic TOXicology
HSDB	Hazardous Substances Data Bank
Haz-Map	Occupational exposure to hazardous agents
MEDLINE	MEDical literature onLINE
MEDLINEplus	Consumer health information
MESH	Medical Subject Headings File
MESH HEADING	Medical Subject Headings
RTECS	Registry of Toxic Effects of Chemical Substances
TOXLINE Core	NLM TOXLINE Core from MEDLINE
TOXLINE Special	NLM TOXLINE Special on TOXNET
TSCAINV	EPA Chemical Substances Inventory

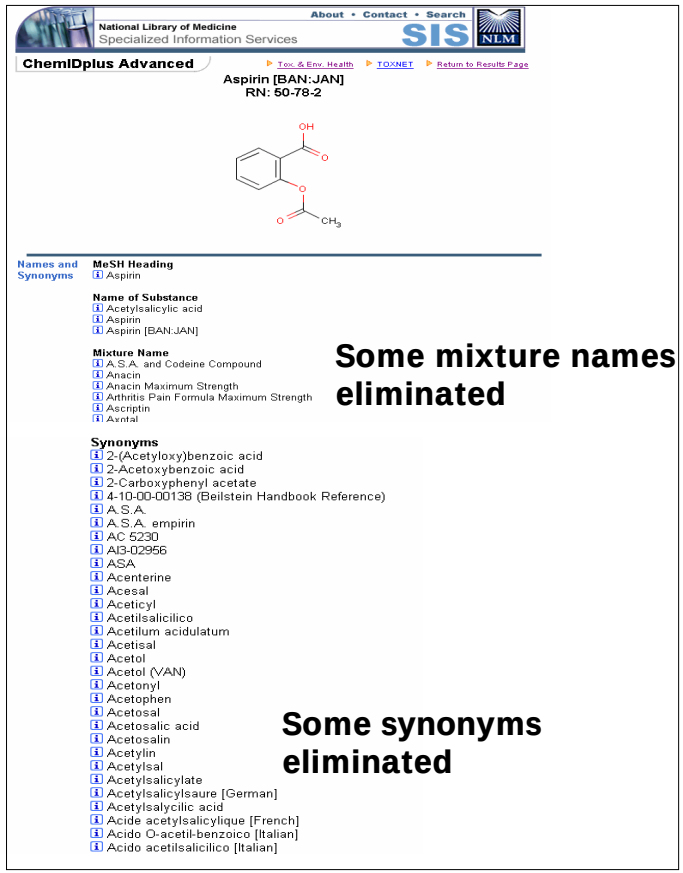
Internet Locator

ChEBI	Chem Entities of Biological Interest
EPA CRS	EPA Substance Registry System
EPA Envirofacts	EPA Master Chemical Integrator
NIAID ChemDB	NIAID Chemical Database
NIOSH ICSC	NIOSH International Chemical Safety Cards
NIST WebBook	NIST Chemistry WebBook
NJ-HSFS	New Jersey Hazardous Substance Fact Sheets
NTP DBS	NTP Database Search
OSHA Chem	OSHA Chemical Sampling Info
SRC CHEMFATE	Syracuse Research Corporation CHEMFATE
healthfinder	DHHS healthfinder

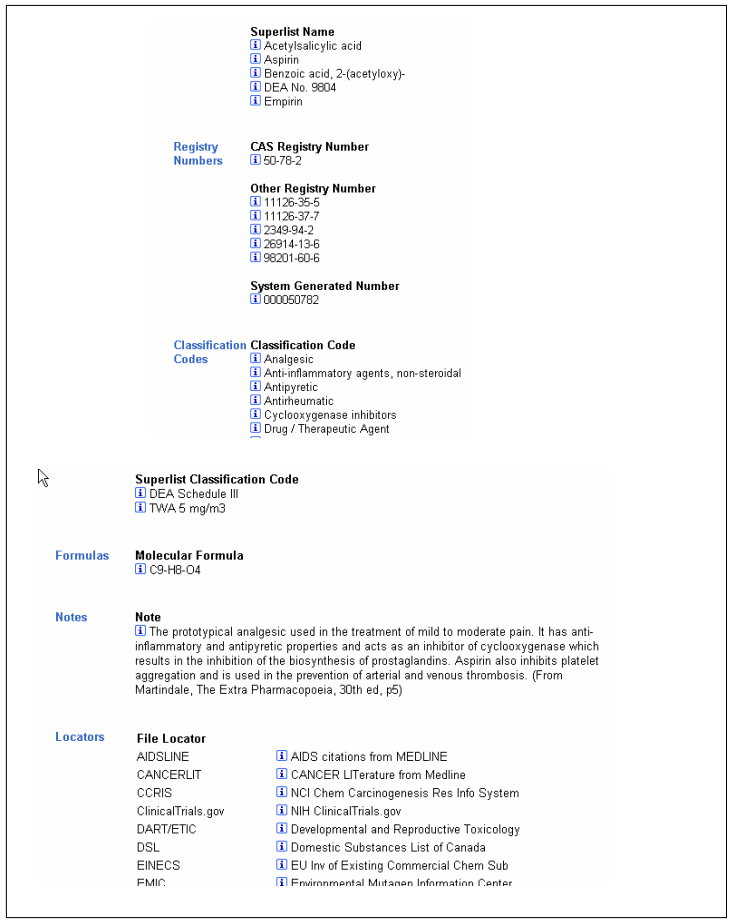
Basic Chem Dp/ Search

Lite vs. Advanced Full Record Page





Lite vs. Advanced Full Record Page (cont'd)



Superlist Name
- Acetylsalicylic acid
- Aspirin
- Benzoic acid, 2-(acetyloxy)-
- DEA No. 9804
- Empirin

Registry Numbers

CAS Registry Number
- 50-78-2

Other Registry Number
- 11126-35-5
- 11126-37-7
- 2349-94-2
- 26914-13-6
- 98201-60-6

System Generated Number
- 000050782

Classification Codes

Classification Code
- Analgesic
- Anti-inflammatory agents, non-steroidal
- Antipyretic
- Antirheumatic
- Cyclooxygenase inhibitors
- Drug / Therapeutic Agent

Superlist Classification Code
- DEA Schedule III
- TWA 5 mg/m3

Formulas

Molecular Formula
- C9-H8-O4

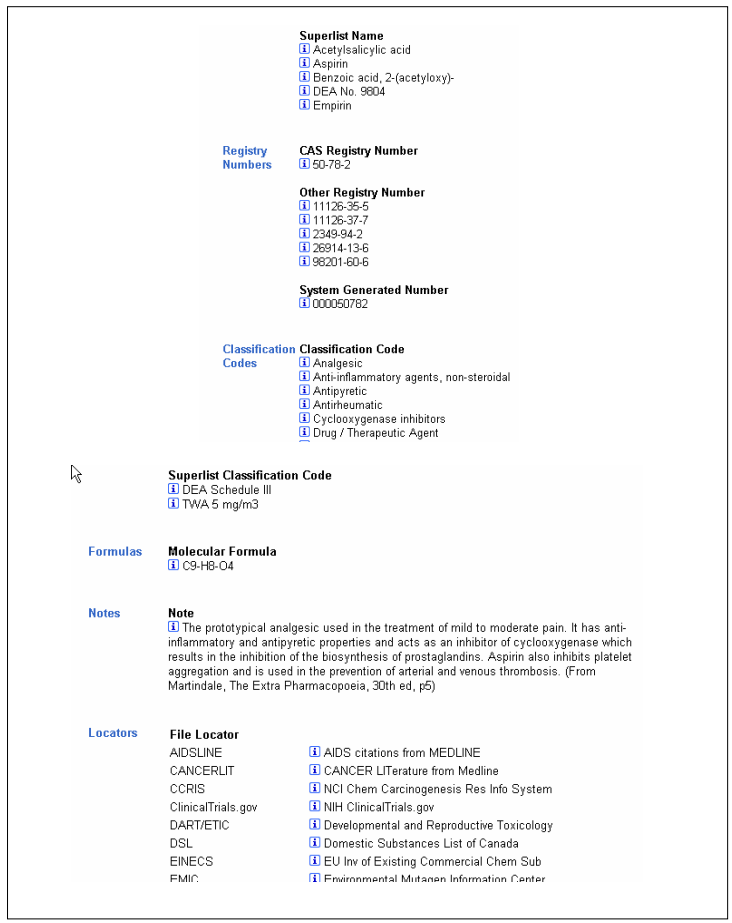
Notes

Note
- The prototypical analgesic used in the treatment of mild to moderate pain. It has anti-inflammatory and antipyretic properties and acts as an inhibitor of cyclooxygenase which results in the inhibition of the biosynthesis of prostaglandins. Aspirin also inhibits platelet aggregation and is used in the prevention of arterial and venous thrombosis. (From Martindale, The Extra Pharmacopoeia, 30th ed, p5)

Locators

File Locator

AIDSLINE	AIDS citations from MEDLINE
CANCERLIT	CANCER LIterature from Medline
CCRIS	NCI Chem Carcinogenesis Res Info System
ClinicalTrials.gov	NIH ClinicalTrials.gov
DART/ETIC	Developmental and Reproductive Toxicology
DSL	Domestic Substances List of Canada
EINECS	EU Inv of Existing Commercial Chem Sub
EMIC	Environmental Mutagen Information Center



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EINECS	EU Inv of Existing Commercial Chem Sub
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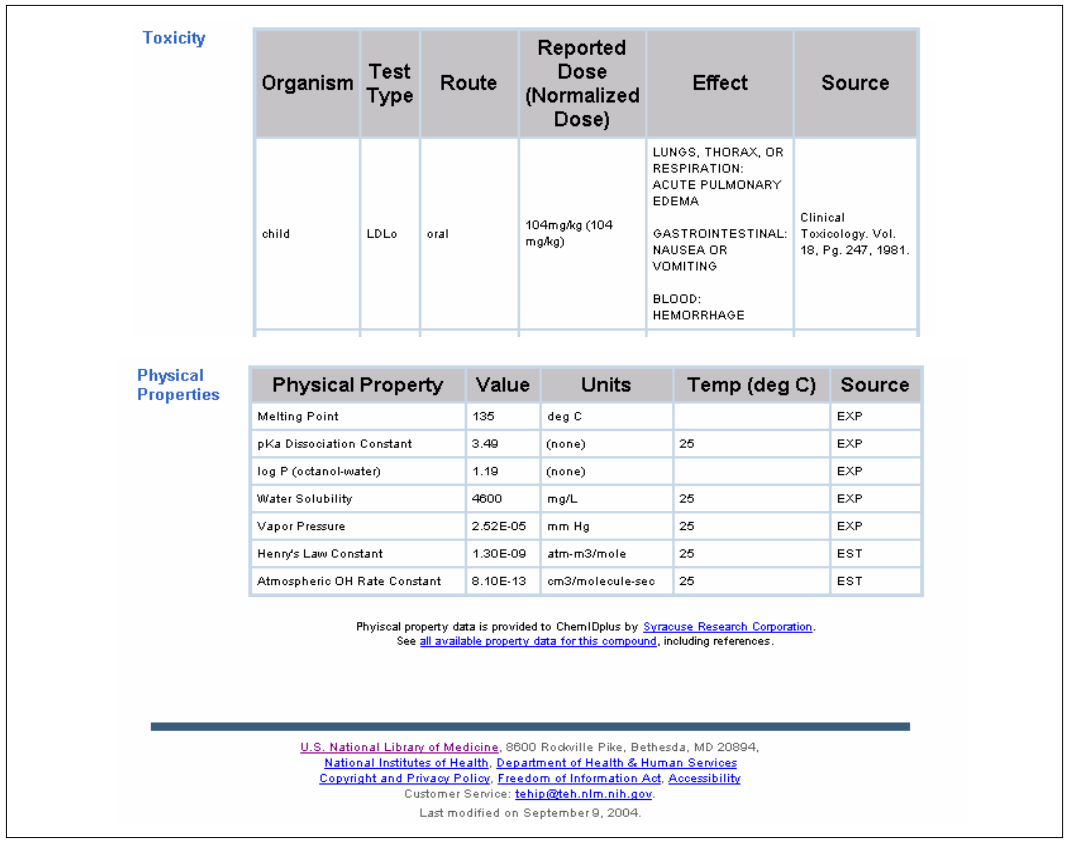
Additional Data in the Advanced Full Record



Toxicity

Organism	Test Type	Route	Reported Dose (Normalized Dose)	Effect	Source
child	LDLo	oral	104mg/kg (104 mg/kg)	LUNGS, THORAX, OR RESPIRATION: ACUTE PULMONARY EDEMA GASTROINTESTINAL: NAUSEA OR VOMITING BLOOD: HEMORRHAGE	Clinical Toxicology. Vol. 18, Pg. 247, 1981.

Physical Properties

Physical Property	Value	Units	Temp (deg C)	Source
Melting Point	135	deg C		EXP
pKa Dissociation Constant	3.49	(none)	25	EXP
log P (octanol-water)	1.19	(none)		EXP
Water Solubility	4600	mg/L	25	EXP
Vapor Pressure	2.52E-05	mm Hg	25	EXP
Henry's Law Constant	1.30E-09	atm-m3/mole	25	EST
Atmospheric OH Rate Constant	8.10E-13	cm3/molecule-sec	25	EST

Phyiscal property data is provided to ChemIDplus by Syracuse Research Corporation.
See all available property data for this compound, including references.

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National Institutes of Health, Department of Health & Human Services
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Customer Service: tehip@teh.nlm.nih.gov
Last modified on September 9, 2004.

Toxicity and Physical Property data follow the locator listing in the advanced full record display not in ChemIDplus Lite. The Lite full record ends with the locator listings.

ChemIDplus Content

Names and Synonyms

- **Name of Substance**: Usually the most commonly used name, includes MeSH heading and USAN name
- **MeSH Heading**: NLM Medical Subject Heading
- **Systematic Name**: Describes molecular structure
- **Synonyms**: All other names found for the substance
- **Mixture Name**: Name of multi-component substance, one of which is the retrieved substance
- **SUPERLIST Name**: The name used by regulatory/guidance lists

ChemIDplus Content

- **Formulas**: The molecular formula in a hyphenated format.

- **Classification Codes**: Describe the general category assigned by a given source to a chemical based on toxicity, use and application, pharmacologic and/or therapeutic category, and status on certain chemical lists.

- **Notes**: A textual description of a compound's use and utility, often from MeSH controlled vocabulary.

- **Locators**: The names of NLM databases, and other major resources that have information about a given compound, usually hyperlinked.

ChemIDplus Content

- **CAS Registry Number**: Unique number of up to 9 digits assigned by Chemical Abstracts Service used to index chemicals. ChemIDplus uses the hyphenated format

- **ID**: The ID number is the CAS Registry Number in a non-hyphenated fixed length format or a unique number for entries that have no CAS Registry or NLM assigned numbers

- **Molecular Structure**: Display of structure (if present) via Chime or Marvin

- **Registry Numbers**: All CAS Registry Numbers known to be assigned over time to a specific compound

ChemIDplus Content

- **Toxicity** Values that indicate whether the dose caused death (LD) or other toxic non-lethal effect (TD) or whether it was administered as a lethal concentration (LC) or toxic concentration in the inhaled air (TC)

- **Chemical Properties** Values for melting point, boiling point, water solubility, octanol/water partition coefficient, vapor pressure, acid dissociation constant, Henry's law, and OH radical reaction rate constant

- **Molecular Weight** The mass of a molecule

*Refer to the Advanced Help Section for more detailed definitions

ChemIDplus Exercises

Using ChemIDplus Lite: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

1. Check the file locator to see what NLM databases contain information on phenytoin. Search DART without leaving ChemIDplus.

   Type Phenytoin in search box, click Search. Click DART/ETIC in the middle blue box under File Locator, view record in slave window.

2. Locate the record for styrene and link to the Internet Locator ATSDR TOXFAQS. Next link to the NIOSH Pocket Guide. Is styrene on the EPA Clean Air Act (CAA1)? Activate the Classification Code button and find the IARC classification on carcinogenecity, click on the “i” to see the source.

   Type styrene in the search box, click Search. Scroll down the middle blue box and under Internet Locators click the link to ATSDR TOXFAQs. Close the slave window and click NIOSH Pocket Guide also under Internet Locators. Next, scroll down and under Superlist Locator click the link to the CAA1 listing for styrene. Under Basic Information on the left, click the button for Classification Code. Under Superlist Classification Code, click the "i" for Overall Carcinogenic Evaluation….. to view this data source in the slave window.

Using ChemIDplus Advanced: http://chem.sis.nlm.nih.gov/chemidplus/

1. Find the “valium” record in ChemIDplus and use its structure to do substructure and similarity searches respectively. How many structures are in each category?

   Type valium in the substance identification input box, click Search. Now click the Transfer Structure button in the left column. In the Structure input box, be sure the default substructure search is selected. Click search. View the result count. Now click the modify query button. In the Structure input box, select similarity search and type in 90 in the percentage pull-down box (the default is 80%). Click search. View the result count. This result give structures that are 90% similar or greater. If no results are retrieved, then a lower percentage must be used.

2. Identify all the HSDB records that are ozone depletors (CAA2).

   In the Locator Code input box select HSDB from the first pull-down list. Type HSDB in the search box. Be sure the default “and” is selected in the second pull-down list. In the third pull-down list choose CAA2. Click Search.

3. Identify all compounds that have an orally administered LD50 less than 50mg/kg (less than 50mg/kg is considered extremely toxic by EPA guidelines-See Help Section under Toxicity).

   In the Toxicity input box next to Test, select LD50 and less than from the pull-down boxes. Then, type 50 in the empty input box below Test. Next to Route, select oral from the pull-down box. Click search.

4. Find the logP value for the chemical DDT in the Physical Properties table. Use the Help Section to verify that this substance is stored in the fatty tissues of animals based on the logP value in the table.

   Type DDT in the substance identification input box and click search. Click on the Physical Properties button under Basic Information. Note the logP value in the table in the slave window. Close the window. Click the Start New Query button to return to the main query page. Click the Help button. Click on the link to Chemical Properties. Scroll down and read the example given for logP values.

Part III

TOXNET Overview, HSDB, & Related Files

What is TOXNET?

- A free web-based system of databases on toxicology, environmental health, hazardous chemicals, toxic releases, chemical nomenclature, and specialty areas such as occupational health and consumer products
- A product of NLM's Toxicology and Environmental Health Information Program
- Toxicology Data (one record per chemical)– HSDB, IRIS, CCRIS, GENE-TOX, ITER (can also search any combination of these files with "Multi-Databases" interface)
- Toxicology Literature (bibliographic references) – TOXLINE, DART/ETIC
- Toxic Releases (of chemicals to the environment) – TRI
- User Support – tehip@teh.nlm.nih.gov or click on "Contact TOXNET"

Where is TOXNET?

toxnet.nlm.nih.gov

Toxicology Data Files - Content

Hazardous Substances Data Bank (HSDB) – from NLM

About 5000 Chemical Records

Human Health Effects
Emergency Medical Treatment
Animal Toxicity Studies
Metabolism/Pharmacokinetics
Pharmacology
Environmental Fate/Exposure
Environmental Standards & Regulations

Chemical/Physical Properties
Chemical Safety & Handling
Occupational Exposure Standards
Manufacturing and Use
Laboratory Methods
Special References
Synonyms and Identifiers

More about HSDB

- Factual Data Bank/Online Handbook
- Peer-Reviewed – Scientific Review Panel
- Review Status Tags – Peer Reviewed, QC Reviewed, Unreviewed
- Fully Referenced
- Data – Excerpted from books, government documents, technical reports, selected primary literature, databases. Some data compiled expressly for HSDB.

Toxicology Data Files - Content

Chemical Carcinogenesis Research Information System (CCRIS) –

from the National Cancer Institute (NCI)

About 9000 Chemical Records

Carcinogenicity Studies
Tumor Inhibition Studies
Tumor Promotion Studies
Mutagenicity Studies

e.g. Carcinogenicity Studies Data Structure – species, route, tumor site/type of lesion, results, reference

Toxicology Data Files - Content

GENE-TOX

from the U.S. Environmental Protection Agency (EPA)

3214 Chemical Records

Note: GENE-TOX not updated since January 2000

Mutagenicity Studies

Data Structure – assay type, assay code, results, panel report, reference

Toxicology Data Files - Content

Integrated Risk Information System (IRIS)

from the U.S. Environmental Protection Agency (EPA)

About 550 Chemical Records

Noncarcinogenic Assess. – Oral (RfD)
Noncarcinogenic Assess. – Inhal. (RfC)

Carcinogenic Assess. – Oral
Carcinogenic Assess. – Inhal.

- Contains EPA consensus scientific positions and quantitative values on cancer and non-cancer health effects that may result from lifetime oral or inhalation exposure to specific chemical substances in the environment
- Risk Assessment – Identification and quantification of risk. Function of toxicity and exposure
- Risk Assessment Process (National Academy of Sciences, 1983) – 1. Hazard identification, 2. Dose-Response assessment [IRIS], 3. Exposure assessment, 4. Risk Characterization

Toxicology Data Files - Content

International Toxicity Estimates for Risk Assessment (ITER)
from Toxicology Excellence for Risk Assessment (TERA)
A Non-profit Corporation

About 650 Chemical Records

Tabular and Comparative Risk Data for Cancer Oral, Non-Cancer Oral, Cancer Inhalation, Non-Cancer Inhalation Effects from:

Agency for Toxic Substances and Disease Registry, U.S. (ATSDR)

Environmental Protection Agency, U.S. (EPA)

Health Canada

International Agency for Research on Cancer (IARC)

NSF International (National Sanitation Foundation)

National Institute of Public Health and the Environment, Dutch (RIVM)

Independently-derived Values

Includes synopses, links to organization source documents

TOXNET - Databases on toxicology, hazardous chemicals, environmental health, and toxic releases.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP

Search All Databases

Enter term(s) to search all databases.

Search | Clear | Help

TOXNET Search Options

- Search all databases: Enter term(s) in box above
- Search a specific database: Click database at left
- Database description: Click on the ?

Env. Health & Toxicology

VISIT SITE

Portal to environmental health and toxicology resources.

Support Pages

- Help
- TOXNET FAQ
- TOXNET Update Status
- Database Description
- Training Manuals
- News

United States National Library of Medicine

TOXNET
Toxicology Data Network

TOXNET PDA Access | SIS Home | About Us | Site Map & Search | Contact Us

Env. Health & Toxicology > TOXNET > HSDB

Hazardous Substances Data Bank (HSDB) - Comprehensive, peer-reviewed toxicology data for about 5,000 chemicals.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP
- TOXNET Home

Search HSDB

acrylamide

(e.g. antifreeze kidney failure, chromium compounds, 7718-54-9)

Search | Clear | Help

For chemicals, add synonyms and CAS numbers to search:

(•) Yes ( ) No

Limits | Browse the Index

Env. Health & Toxicology

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Portal to environmental health and toxicology resources.

Support Pages

- Help
- Fact Sheet
- Sample Record
- HSDB Scientific Review Panel
- TOXNET FAQ

Chemical names, ID numbers, or other attributes can be searched, singly or in combination.

Default selection is to add synonyms.

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Toxicology Data Network

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Env. Health & Toxicology ▶ TOXNET

TOXNET - Databases on toxicology, hazardous chemicals, environmental health, and toxic releases.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP

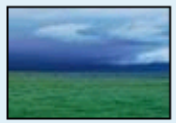
Search All Databases

Enter term(s) to search all databases.

acrylamide

Search | Clear | Help

Env. Health & Toxicology



VISIT SITE

Portal to environmental health and toxicology resources.

Support Pages

- Help
- TOXNET FAQ
- Database Description
- Training Manuals
- News

Search Results:

Database	Records found
TOXLINE Special	2070
DART Special	68
HSDB	37
IRIS	1
ITER	2
GENETOX	2
CCRIS	8
TRI	83
CHEMID*plus*	1

Other Related NLM Resources

Household Products	Show me
Haz-Map	Show me
TOXMAP	Map It

To search all or a combination of HSDB, CCRIS, GENETOX,IRIS, ITER

Record counts may vary somewhat when databases are searched individually.

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National Institutes of Health, Health & Human Services

HSDB Search Results

- Save Checked Items
- Sort
- Details
- History
- Download
- Modify Search
- Basic Search
- Browse Index
- Help
- TOXNET Home

acrylamide [Search] [Clear] [Limits]

For chemicals, add synonyms and CAS numbers to search: (•) Yes ( ) No

Items **1** through **20** of **37** **Pages:** 1 2

Substance Names are sorted in relevancy ranked order.

More relevant records display nearer the top of the list.

Select Record	Substance Name
	The following is the primary record for the chemical. All of the query terms were found.
1 ☐	ACRYLAMIDE 79-06-1
	The following 36 records contain one or more of the requested chemical name(s) and all of the query terms anywhere in the record.
2 ☐	N-(HYDROXYMETHYL)ACRYLAMIDE 924-42-5
3 ☐	POLYACRYLAMIDE 9003-05-8
4 ☐	ACRYLONITRILE 107-13-1
5 ☐	STYRENE-7,8-OXIDE 96-09-3
6 ☐	DIACETONE ACRYLAMIDE 2873-97-4
7 ☐	FURYLFURAMIDE 3688-53-7
8 ☐	VINYL SULFONE 77-77-0
9 ☐	N-ISOPROPYLACRYLAMIDE 2210-25-5
10 ☐	TRIPHENYLTIN HYDROXIDE 76-87-9

Note other chemical records in which name acrylamide is mentioned.

Click here to view environmental fate information.

ACRYLAMIDE
CASRN: 79-06-1
For other data, click on the Table of Contents

Human Health Effects is default display only for HSDB.

Search term(s) highlighted in red.

Human Health Effects:

Evidence for Carcinogenicity:

CLASSIFICATION: B2; probable human carcinogen. BASIS FOR CLASSIFICATION: Based on inadequate human data and sufficient evidence of carcinogenicity in animals; significantly increased incidences of benign and/or malignant tumors at multiple sites in both sexes of rats, and carcinogenic effects in a series of one-year limited bioassays in mice by several routes of exposure. The classification is supported by positive genotoxicity data, adduct formation activity, and structure-activity relationships to vinyl carbamate and acrylonitrile. HUMAN CARCINOGENICITY DATA: Inadequate. ANIMAL CARCINOGENICITY DATA: Sufficient.
[U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) on Acrylamide (79-06-1) Available from: http://www.epa.gov/ngispgm3/iris on the Substance File List as of March 15, 2000]**PEER REVIEWED**

Evaluation: There is inadequate evidence in humans for the carcinogenicity of **acrylamide**. There is sufficient evidence in experimental animals for the carcinogenicity of **acrylamide**. In making the overall evaluation, the Working Group took into consideration the following supporting evidence: (1) **Acrylamide** and its metabolite glycidamide form covalent adducts with DNA in mice and rats. (2) **Acrylamide** and glycidamide form covalent adducts with hemoglobin in exposed humans and rats. (3) **Acrylamide** induces gene mutations and chromosomal aberrations in germ cells of mice and chromosomal aberrations in germ cells of rats and forms covalent adducts with protamines in germ cells of mice in vivo. (4) **Acrylamide** induces chromosomal aberrations in somatic cells of rodents in vivo. (5) **Acrylamide** induces gene mutations and chromosomal aberrations in cultured cells in vitro. (6) **Acrylamide** induces cell transformation in mouse cell lines. Overall evaluation: **Acrylamide** is probably carcinogenic to humans (Group 2A).
[IARC. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT. (Multivolume work)., p. V60 425 (1994)]**PEER REVIEWED**

A3; Confirmed animal carcinogen with unknown relevance to humans.
[American Conference of Governmental Industrial Hygienists TLVs and BEIs. Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinatti, OH, 2005, p. 10]**QC REVIEWED**

Human Toxicity Excerpts:

/HUMAN EXPOSURE STUDIES/ A recent study of workers occupationally exposed to solutions containing approximately 30% aqueous **acrylamide** monomer in the manufacture of monomeric and polymeric **acrylamide** reported skin effects as well as some potential signs of neurotoxicity. Results of a questionnaire indicated skin peeling from the hands in 38/71 (54%) workers, and a clinical examination showed this finding in 16/71 (23%). This compared with a control group in which the incidence was 2/51 (4%). Erythema was recorded in 16/71 (23%) of workers compared with none in the control group.
[European Chemicals Bureau; European Union: Risk Assessment Report for Acrylamide (79-06-1). Available from database query at http://ecb.jrc.it/existing-chemicals/ as of April 26, 2004]**PEER REVIEWED**

/HUMAN EXPOSURE STUDIES/ Ingestion by an adult of 18 g **acrylamide** crystals was followed within 5 hr by hallucinations, hypotension, seizures, GI bleeding, & adult respiratory distress syndrome. Symptoms of peripheral neuropathy & hepatotoxicity appeared 3 days after ingestion.
[Ellenhorn, M.J., S. Schonwald, G. Ordog, J. Wasserberger. Ellenhorn's Medical Toxicology: Diagnosis and Treatment of Human Poisoning. 2nd ed. Baltimore, MD: Williams and Wilkins, 1997., p. 1673]**PEER REVIEWED**

/SIGNS AND SYMPTOMS/ Long-term **acrylamide** exposure produces a motor & sensory polyneuropathy that is insidious & distal in onset. The presence of ataxia &, occasionally, dysarthria & tremor suggests central midbrain involvement. Signs & symptoms include weakness, paresthesias, fatigue, lethargy, decreased pinprick sensation, vibratory loss, decreased reflexes, & positive Romberg sign. Severity is worse in distal portions of the extremities. Desquamation of the palms & soles, sweating, & peripheral vasoconstriction are more prominent in **acrylamide** peripheral

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ACRYLAMIDE
CASRN: 79-06-1
For other data, click on the Table of Contents

Environmental Fate & Exposure:

Environmental Fate/Exposure Summary:

Acrylamide's production and use in the production of polyacrylamide and amide monomers may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 0.007 mm Hg at 25 deg C indicates **acrylamide** will exist solely as a vapor in the ambient atmosphere. Vapor-phase **acrylamide** will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 1.4 days. The half-life for the reaction of vapor-phase **acrylamide** with ozone is estimated to be 6.5 days. **Acrylamide** is not expected to be susceptible to direct photolysis in sunlight since it does not absorb light with wavelengths >290 nm. If released to soil, **acrylamide** is expected to have very high mobility based upon an estimated Koc of 10. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.8X10-9 atm-cu m/mole. Volatilization from dry soil surfaces is not expected based on **acrylamide**'s vapor pressure. The nitrogen in **acrylamide** was recovered as inorganic nitrogen with recoveries after 3 and 14 days at 30 deg C ranging from 11-71% in Clarion soil and 74-95% in Canisteo soil, respectively. Results from these studies suggested that **acrylamide** is hydrolyzed in soil under aerobic conditions to produce ammonium ion, which is then oxidized to nitrite ion and nitrate ion. If released into water, **acrylamide** is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. In a river die-away test, 90% of **acrylamide** disappeared in approximately 150 hours. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's Henry's Law constant. A BCF of 1 for fingerling trout, suggests the potential for bioconcentration in aquatic organisms is low. The hydrolysis half-life of **acrylamide** has been reported as >38 yrs. Occupational exposure to **acrylamide** may occur through inhalation and dermal contact with this compound at workplaces where **acrylamide** is produced or used such as its use in soil stabilization. Monitoring data indicate that the general population may be exposed to **acrylamide** via ingestion of food and drinking water and via dermal contact with polyacrylamide products, which may contain **acrylamide**. **Acrylamide** has been found in certain foods that have been cooked and processed at high temperatures. In foods that have been analyzed, the highest average levels of **acrylamide** were found in potato crisps and chips; however, levels varied widely from not detected to 3.5 mg/kg of product. Average daily intakes of **acrylamide** for the general population were estimated to be 0.3-0.8 ug of **acrylamide** per kg of body weight. In addition, tobacco smoke is a substantial non-food source of exposure to **acrylamide** for people without occupational exposure. (SRC)
PEER REVIEWED

Probable Routes of Human Exposure:

NIOSH (NOES Survey 1981-1983) has statistically estimated that 10,651 workers (721 of these are female) are potentially exposed to **acrylamide** in the US(1). Occupational exposure to **acrylamide** may occur through inhalation and dermal contact with this compound at workplaces where **acrylamide** is produced or used such as its use in soil stabilization(SRC). Monitoring data indicate that the general population may be exposed to **acrylamide** via ingestion of food and drinking water and via dermal contact with polyacrylamide products, which may contain **acrylamide**(SRC). **Acrylamide** has been found in certain foods that have been cooked and processed at high temperatures(2). In foods that have been analyzed, the highest average levels of **acrylamide** were found in potato crisps and chips; however, levels varied widely from not detected to 3.5 mg/kg of product(2). Average daily intakes of **acrylamide** for the general population were estimated to be 0.3-0.8 ug of **acrylamide** per kg of body weight(2). In addition, tobacco smoke is a substantial non-food source of exposure to **acrylamide** for people without occupational exposure(2).
[(1) NIOSH; National Occupational Exposure Survey (NOES) (1983) (2) WHO; Health Implications of Acrylamide in Food, June 2002. Geneva, Switzerland. World Health Organization. Available at http://www.who.int/foodsafety/publications/chem/en/acrylamide_full.pdf as of March 16, 2004.]**PEER REVIEWED**

Human exposure to **aCrylamide** is primarily occupational from dermal contact with the solid monomer and inhalation of dust and vapor especially when emptying bags and drums and in maintenance and repair(1,2). Residual monomer is a concern in the polymer(2). Air concns of **acrylamide** at four manufacturing and one grouting site ranged from 0.001 to 8.291 mg/cu m. One plant had the greatest range of range of arcylamide air levels (0.014-8.291 mg/cu m); this was due mainly to the production of dry **acrylamide**(3). The time weighted average exposure of personal to **acrylamide** at these four facilities ranged from a high of 0.085 mg/cu m (range, 0.017-0.260 mg/cu m) for monomer material handlers to a low of 0.013 mg/cu m (range, 0.001-0.132 mg.cu m) for maintenance workers(3). Workers in the chemical sewer grouting industry were exposed to air avg concns of **acrylamide** ranging from 0.0047 to 0.0444 mg/cu m(4).
[(1) MacWilliams DC; Kirk-Othmer Encycl Chem Tech NY, NY: Wiley-Interscience 1: 298-311 (1978) (2) Morris JD, Penzenstadler RJ; Kirk-Othmer Enclycl Chem Tech NY, NY: Wiley-Interscience 1: 312-330 (1978) (3) Hills BW, Greife AL; Appl Ind Hyg 1: 148-52 (1986) (5) Cummins K; Appl Occup Environ Hyg 7: 385-391 (1992)]**PEER REVIEWED**

Query:
(acrylamide OR propenamide OR ethylenecarboxamide OR akrylamid OR "acrylic amide")

The chemical name **acrylamide** was identified.
The following terms were added from ChemIDplus:
propenamide
ethylenecarboxamide
akrylamid
acrylic amide
CAS Registry Number: **79-06-1**

"Details" for acrylamide search

Hazardous Substances Data Bank (HSDB) - Comprehensive, peer-reviewed toxicology data for about 5,000 chemicals.

LIMITS Search

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP
- TOXNET Home

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Support Pages

- Help
- Fact Sheet
- Sample Record
- HSDB Scientific Review Panel
- TOXNET FAQ

Search HSDB

acrylamide potato chips

Search | Clear | Help

Add chemical synonyms and CAS numbers to search: (•) Yes ( ) No

Search: ( ) exact words (•) singular & plural forms ( ) word variants

Search records with: ( ) the phrase (•) all words ( ) any words

Search in fields:

(If no box is checked, all fields will be searched.)

Contract all categories

Expand all categories

- [ ] Substance Identification
- [x] Human Health Effects
- [ ] Emergency Medical Treatment
- [ ] Animal Toxicity Studies
- [ ] Metabolism/Pharmacokinetics
- [ ] Pharmacology
- [x] Environmental Fate & Exposure
- [ ] Environmental Standards & Regulations
- [ ] Chemical/Physical Properties
- [ ] Chemical Safety & Handling
- [ ] Occupational Exposure Standards
- [ ] Manufacturing/Use Information
- [ ] Laboratory Methods
- [ ] Special References
- [ ] Synonyms and Identifiers
- [ ] Administrative Information

Search | Browse the Index

ACRYLAMIDE
CASRN: 79-06-1
For other data, click on the Table of Contents

Best Sections

Most relevant first.

Food Survey Values :

Acrylamide levels were measured in foods in the 2003 FDA Total Diet Survey, which represents 286 ready-to-eat foods in the US food supply(1). **Acrylamide** was generally not detected (detection limit 10 ppb) or detected infrequently in dairy, eggs, fats/oils, beverages, fruits, vegetables, legumes, mixtures (casseroles, sandwiches, soups, and pizzas), and meat/poultry/fish(1). Snack foods (corn/tortilla **chips**, microwave popcorn, **potato chips**, pretzels) contained some of the highest levels of **acrylamide**, ranging from 46 to 536 ppb(1). **Acrylamide** was also detected relatively frequently in the grains/starches/baked good category, with the highest levels found in graham crackers (211-647 ppb) and butter-type crackers (348-425 ppb)(1). **Acrylamide** was detected relatively infrequently in baby food products, with the highest levels found in arrowroot cookies (105-267 ppb), sweet potatoes (30-117 ppb), and teething biscuits (128-235 ppb)(1).
[(1) US Food and Drug Administration; Exploratory Data on Acrylamide in Food FY 2003 Total Diet Study Results. March 2004. Available at: http://www.cfsan.fda.gov/~dms/acrydat2.html as of April 7, 2004.]**PEER REVIEWED**

Food Survey Values :

Mean (ug/kg) **acrylamide** concentrations in various foods and food product groups from Norway, Sweden, Switzerland, the UK, and the US have been reported as: **potato** crisps/sweet **potato**: 1,312 (range 170-2,287, for n=38 samples); **potato chips**: 537 (<50-3,500, n=39); batter baked products: 36 (<30-42, n=2); bakery products: 112 (<50-450, n=19); biscuits, crackers, toast, bread crisps: 423 (<30-3,200, n=58); breakfast cereals: 298 (<30-1,346, n=29), corn crisps: 218 (34-416, n=7); soft bread: 50 (<30-162, n=41); crumbed, battered fish and seafood products: 35 (30-39, n=4); crumbed, battered poultry or game: 52 (39-64, n=2); instant malt drinks: 50 (<50-70, n=3); chocolate powder: 75 (<50-100, n=2); coffee powder: 200 (170-230, n=3); beer: <30(1).
[(1) WHO; Health Implications of Acrylamide in Food, June 2002. Geneva, Switzerland. World Health Organization. Available at http://www.who.int/foodsafety/publications/chem/en/acrylamide_full.pdf as of March 16, 2004.]**PEER REVIEWED**

Hot-Linked Document

Human Toxicity Excerpts :

/EPIDEMIOLOGY STUDIES/ A considerable public concern about cancer risk from **acrylamide**-rich foods followed the announcement that high concentrations of **acrylamide** are found in fried potatoes and **potato chips** and, more generally, in starch-containing foods cooked at high temperatures. From a series of hospital-based case-control studies conducted in Italy and Switzerland between 1991 and 2000, the relation between intake of fried/baked potatoes and cancer risk /was analyzed/. The cancer sites considered were oral cavity and pharynx (749 cases, 1772 controls), esophagus (395 cases, 1066 controls), larynx (527 cases, 1297 controls), large bowel (1225 colon and 728 rectum cases, 4154 controls), breast (2569 cases, 2588 controls) and ovary (1031 cases, 2411 controls). Controls were subjects admitted to the same network of hospitals of cases for acute, non-neoplastic conditions. ... We found no evidence of interaction with age, gender, alcohol and tobacco use. Our data provide reassuring evidence for the lack of an important association between consumption of fried/baked potatoes and cancer risk.
[Pelucchi C et al; Int J Cancer 105 (4):558-60 (2003)]**PEER REVIEWED**

Environmental Fate/Exposure Summary :

Acrylamide's production and use in the production of polyacrylamide and amide monomers may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 0.007 mm Hg at 25 deg C indicates **acrylamide** will exist solely as a vapor in the ambient atmosphere. Vapor-phase **acrylamide** will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 1.4 days. The half-life for the reaction of vapor-phase **acrylamide** with ozone is estimated to be 6.5 days. **Acrylamide** is not expected to be susceptible to direct photolysis in sunlight since it does not absorb light with wavelengths >290 nm. If released to soil, **acrylamide** is expected to have very high mobility based upon an estimated Koc of

Click to see acrylamide records in other databases.

Contents

Contract all categories
Expand all categories
Select Clear

ACRYLAMIDE

CASRN: 79-06-1

For other data, click on the Table of Contents

Links to Related Records in Other Databases - Microsoft ...

Select ITER

IRIS Record
ITER Record
CCRIS Record
GENETOX Record
TOXLINE SPECIAL Records
TOXLINE CORE Records
ChemIDplus Chemical Structure

Best Sections

Food Survey Values :

Acrylamide levels were measured in foods in the 2003 FDA Total Diet Survey, which represents 286 ready-to-eat foods in the US food supply(1). **Acrylamide** was generally not detected (detection limit 10 ppb) or detected infrequently in dairy, eggs, fats/oils, beverages, fruits, vegetables, legumes, mixtures (casseroles, sandwiches, soups, and pizzas), and meat/poultry/fish(1). Snack foods (corn/tortilla **chips**, microwave popcorn, **potato chips**, pretzels) contained some of the highest levels of **acrylamide**, ranging from 46 to 536 ppb(1). **Acrylamide** was also detected relatively frequently in the grains/starches/baked good category, with the highest levels found in graham crackers (211-647 ppb) and butter-type crackers (348-425 ppb)(1). **Acrylamide** was detected relatively infrequently in baby food products, with the highest levels found in arrowroot cookies (105-267 ppb), sweet potatoes (30-117 ppb), and teething biscuits (128-235 ppb)(1).

[(1) US Food and Drug Administration; Exploratory Data on Acrylamide in Food FY 2003 Total Diet Study Results. March 2004. Available at: http://www.cfsan.fda.gov/~dms/acrydat2.html as of April 7, 2004.]**PEER REVIEWED**

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[(1) WHO; Health Implications of Acrylamide in Food, June 2002. Geneva, Switzerland. World Health Organization. Available at http://www.who.int/foodsafety/publications/chem/en/acrylamide_full.pdf as of

Contents
Contract all categories
Expand all categories
Select | Clear

FULL RECORD
Substance Identification/Summary Table
Risk Data

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ACRYLAMIDE
CASRN: 79-06-1
For other data, click on the Table of Contents

Substance Identification/Summary Table:

Substance Name: ACRYLAMIDE

CAS Registry Number: 79-06-1

Risk Values - Summary Table:

Summary Risk Table for: ACRYLAMIDE							
Risk Value Type \ Organization	**ATSDR**	**Health Canada**	**IARC**	**ITER**	**NSF Intl**	**RIVM**	**U.S.EPA**
Noncancer Oral	--	--	--	--	--	--	✓
Cancer Oral	--	--	--	--	--	--	✓
Noncancer Inhalation	--	--	--	--	--	--	--
Cancer Inhalation	--	--	--	--	--	--	✓
✓ = *Chemical evaluated and ITER data online.*							

Risk Data :

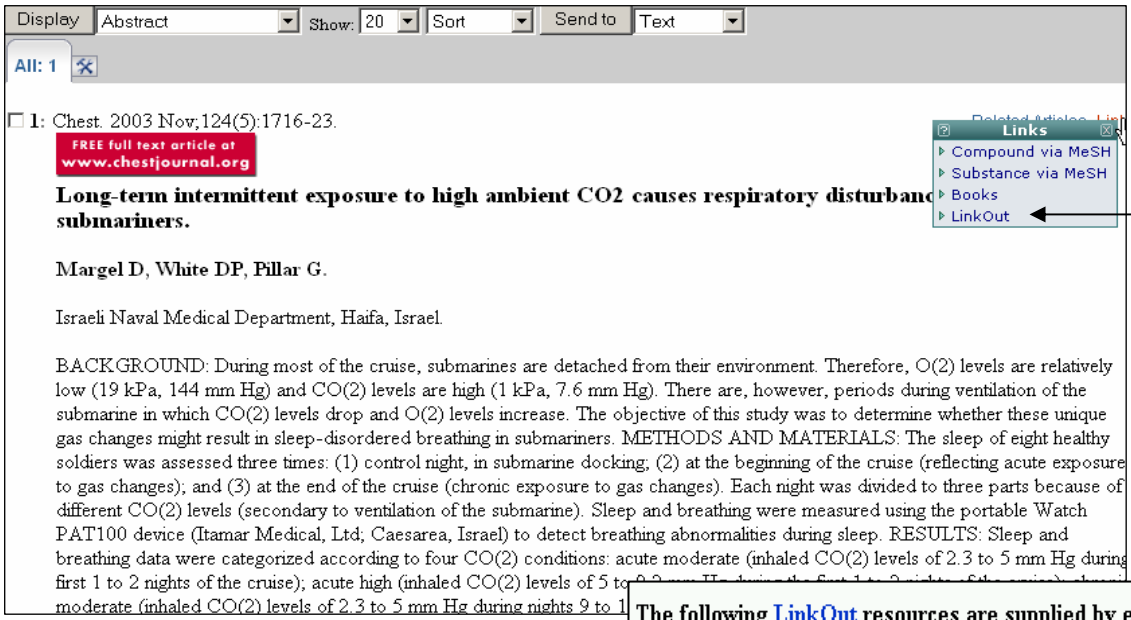
Risk Data - Noncancer Oral:

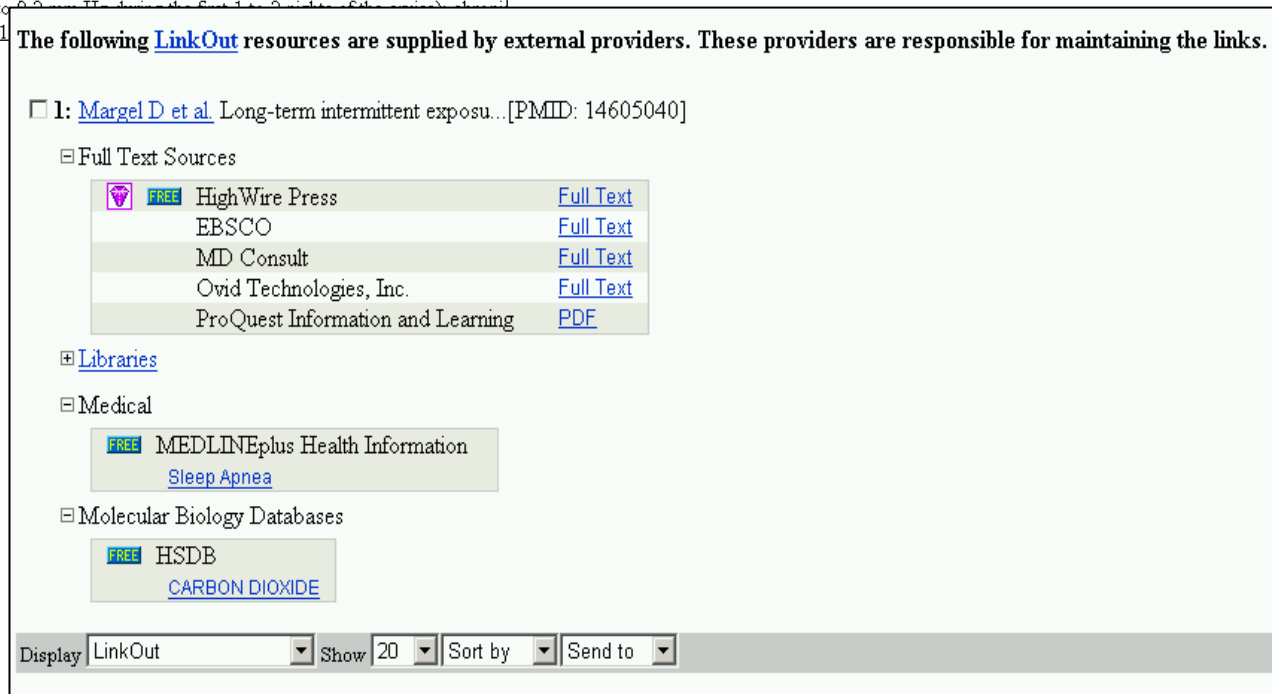
ITER Noncancer Oral Risk Table for: ACRYLAMIDE							
Risk Value Parameter\ Organization	**ATSDR**	**Health Canada**	**IARC**	**ITER**	**NSF Intl**	**RIVM**	**U.S.EPA**
Risk Value Name	--	--	--	--	--	--	RfD
Risk Value*	--	--	--	--	--	--	2E-4
Year	--	--	--	--	--	--	1988
Basis (Experimental)*	--	--	--	--	--	--	NOEL, 0.2
Basis (Adjusted)*	--	--	--	--	--	--	NA
Uncertainty Factor	--	--	--	--	--	--	1000
Critical Organ or Effect	--	--	--	--	--	--	Nervous System
Species	--	--	--	--	--	--	Rat
Study	--	--	--	--	--	--	Burek et al., 1980
View Specifics:	--	--	--	--	--	--	Click here
**In mg/kg body weight per day, unless otherwise specified.*							

Boolean Searching, Field Qualification, Other Search Features

- Upper Case Boolean Operators (AND, OR, NOT)
- Fields in brackets and post-qualified (e.g. benzene [na])
- Nested parentheses permitted
- Phrase searching with quotation marks (e.g. “coronary artery bypass”)
- Asterisk (*) for truncation (e.g. carcinogen*)

LinkOut from PubMed to HSDB





Part IV

TOXLINE and Other Bibliographic Files

TOXLINE
TOXicology Literature onLine

- Covers pharmacological, biochemical, physiological, environmental, and toxicological effects of chemicals/other agents on living systems
- Citations, Abstracts, Keywords and/or MeSH (Medical Subject Headings)
- CAS Registry Numbers
- From 1965 (and earlier) to date
- Drawn from Secondary Sources, varying unit record formats
- Components – TOXLINE Core (on PubMed, accessible via TOXNET) and TOXLINE Special (on TOXNET). Project underway to consolidate Core and Special
- Nearly 3 ½ million toxicology related records combined

TOXLINE Core (on PubMed)

- Toxicology Subset limit of MEDLINE on PubMed
- Similar to TOXLINE's former TOXBIB subfile
- Drawn from standard biomedical journal literature
- Accessible directly on PubMed or from the TOXLINE search screen on TOXNET
- Some features of PubMed:
  - MeSH Searching
  - Limit by field, publication type, age, gender, language, human or animal, etc.
  - MyNCBI Cubby – to store and update search strategies
  - Related articles
  - LinkOut + Links to Books
  - Interlibrary Loan (Loansome Doc)

TOXLINE Special (on TOXNET)

- Technical Reports and Research Projects
  - Federal Research in Progress (FEDRIP)
  - Toxicology Document and Data Depository (NTIS)
  - Toxicology Research Projects (CRISP)
  - Toxic Substances Control Act Test Submissions (TSCATS)

- Special Journal and Other Research Literature
  - Developmental and Reproductive Toxicology (DART)
  - International Labour Office (CIS)
  - Swedish National Chemicals Inspectorate (RISKLINE)

- Meeting Abstracts (MTGABS)

TOXLINE Special (continued)

- Archival Collections (No Longer Being Updated)
  - Aneuploidy (ANEUPL)
  - Environmental Mutagen Information Center file (EMIC)
  - Environmental Teratology Information Center file (ETIC)
  - Epidemiology Information System (EPIDEM)
  - Hazardous Materials Technical Center (HMTC)
  - International Pharmaceutical Abstracts (IPA)
  - NIOSHTIC (NIOSH)
  - Pesticides Abstracts (PESTAB)
  - Poisonous Plants Bibliography (PPIB)
  - Toxicological Aspects of Environmental Health (BIOSIS)

TOXLINE Special (continued)

- Some Features of TOXLINE Special
  - Relevancy Ranking
  - Toggle between TOXLINE Special and TOXLINE Core
  - Automatic Mapping to MeSH terms – e.g. passive smoking --- tobacco smoke pollution
  - Link to TOXLINE Special from *ChemIDplus*
  - Related Articles

Note: Search algorithms and display formats of TOXLINE Special and TOXLINE Core vary.

Another Toxicology Literature File

Developmental and Reproductive Toxicology (DART/ETIC)

About 76,000 Records

- Covers Developmental and Reproductive Toxicology (including Teratology)
- Components – DART Core (on PubMed) and DART Special (on TOXNET)

United States National Library of Medicine

TOXNET
Toxicology Data Network

TOXNET PDA Access | SIS Home | About Us | Site Map & Search | Contact Us

Env. Health & Toxicology | TOXNET | TOXLINE

Toxicology Literature Online (TOXLINE) - References from toxicology literature.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP
- TOXNET Home

Search TOXLINE

toluidine bladder cancer

(e.g. asphalt fumes roofers, calcium aging, Neville DM autoimmune)

Search | Clear | Help

For chemicals, add synonyms and CAS numbers to search:
Yes / No

Search in
- TOXLINE Special
- TOXLINE Core on PubMed
- Both ← Default

Limits | Browse the Index

Env. Health & Toxicology

VISIT SITE

Portal to environmental health and toxicology resources.

Support Pages

- Help
- Fact Sheet
- Sample Record
- TOXNET FAQ

Enter chemical names, CAS Registry Numbers, other terms, etc.

Save Checked Items
Sort
Details
History
Download
Modify Search
Basic Search
Browse Index
Help
TOXNET Home

TOXLINE Special Search Results

toluidine bladder cancer | Search | Clear | Limits

SEARCH RESULTS PAGE

For chemicals, add synonyms and CAS numbers to search: (•) Yes ( ) No

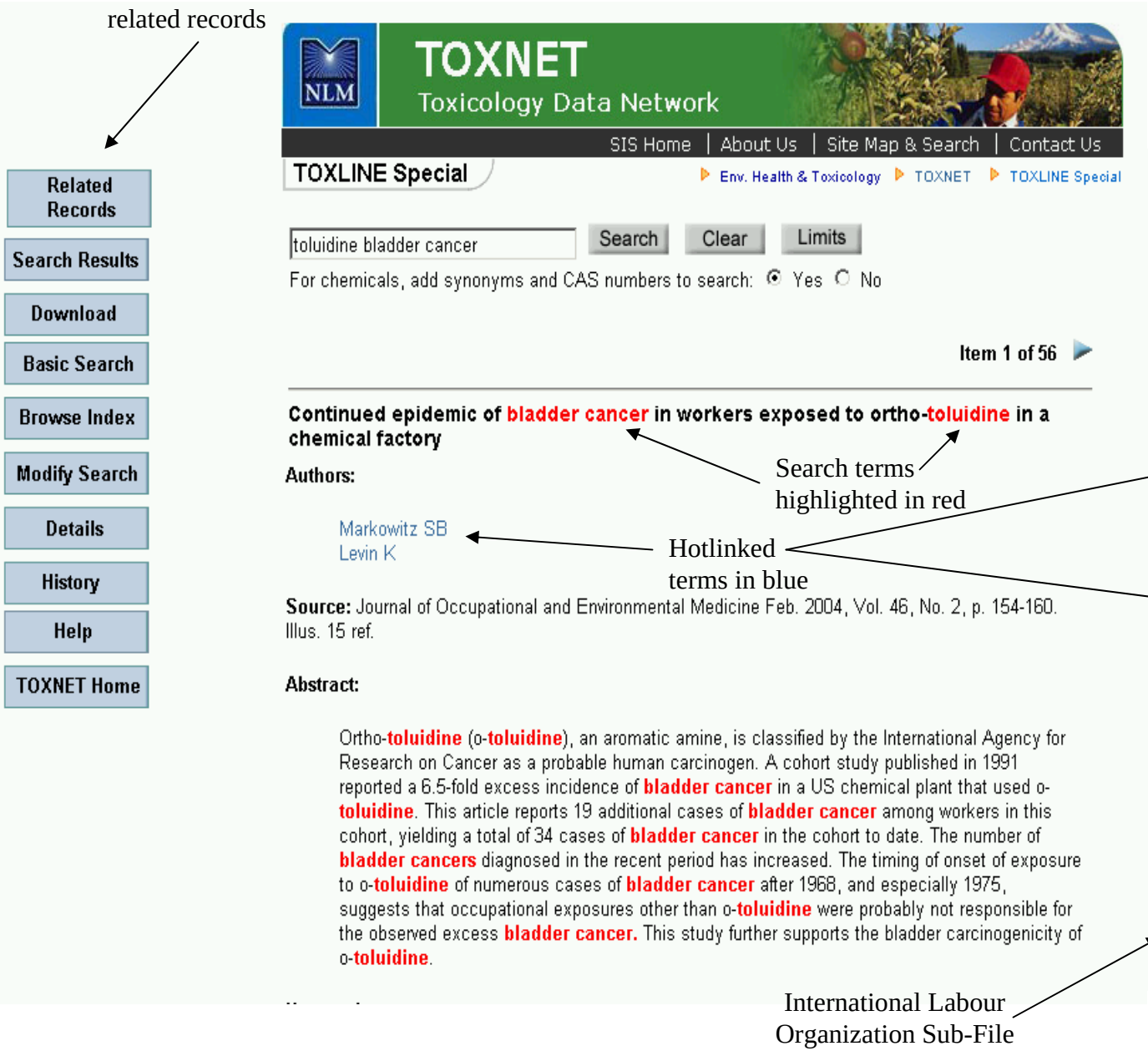
Items **1** through **20** of **56**

Pages: 1 2 3 ▶

References are sorted in relevancy ranked order.
*Click on **Sort** to change the order of the retrieved References.*

Select Record	Reference
1 ☐	**Continued epidemic of bladder cancer in workers exposed to ortho-toluidine in a chemical factory** Markowitz SB; Levin K Journal of Occupational and Environmental Medicine Feb. 2004, Vol. 46, No. 2, p. 154-160. Illus. 15 ref. [CIS]
2 ☐	**An Alternative Hypothesis for Bladder Cancer among Workers Exposed to ortho-Toluidine and Aniline** Acquavella JF ; Wilson JD ; Conner P ; Bannister R ; Ward EM ; Roberts D ; Streicher R ; Boeniger M ; Fajen J Journal of the National Cancer Institute, Vol. 83, No. 22, pages 1686-1687, 15 references, 1991 [NIOSH]
3 ☐	**ortho-Toluidine** Anonymous IARC Monographs on the evaluation of the carcinogenic risk of chemicals to humans Vol:77 (2000) pp 267-322 [RISKLINE]
4 ☐	**Bladder Cancer in Workers Exposed to Aniline** Tannenbaum SR ; Ward E ; Dankovic DA Journal of the National Cancer Institute, Vol. 83, No. 20, pages 1507-1508, 21 references, 1991 [NIOSH]
5 ☐	**Chlordimeform** Anonymous Environmental Health Criteria Vol:199 (1998) 145 p [RISKLINE]
6 ☐	**4-Chloro-ortho-toluidine** Anonymous IARC Monographs on the evaluation of the carcinogenic risk of chemicals to humans Vol:77 (2000) pp 323-48 [RISKLINE]
7 ☐	**NIOSH Alert: Request for Assistance in Preventing Bladder Cancer from Exposure to o-Toluidine and Aniline.**

To view related records



Search terms highlighted in red

Hotlinked terms in blue

International Labour Organization Sub-File

SELECTED RECORD PAGE

Search *TOXLINE* for

HISTORY

To combine search statements or enter a new search.

- Search History will be lost after one hour of inactivity.
- To combine searches use # before search number. e.g. #2 AND #6.
- Searches may not be combined across databases.

Search	Database	Query	Time	Result
# 4	toxline	(#1 AND (#2 OR #3))	15:59:55	292
# 3	toxline	(rat OR rats) AND (kidney)	15:59:12	14171
# 2	toxline	(rat OR rats) AND (liver)	15:59:03	50000
# 1	toxline	(pentachlorophenol OR pentachlorphenol OR permasan OR "penta wr" OR "penta ready" OR penchlorol OR liroprem OR lauxtol OR "grundier arbezol" OR fungifen OR chlon OR 87-86-5 [rn])	15:56:59	4940

Clear History

A way to review your search strategies.

“LIMITS” Search

Toxicology Literature Online (TOXLINE) - References from toxicology literature.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- Multi-Database
- TRI
- Haz-Map
- Household Products
- TOXMAP
- TOXNET Home

Env. Health & Toxicology

VISIT SITE

Portal to environmental health and toxicology resources.

Support Pages

- Help
- Fact Sheet
- Sample Record
- TOXNET FAQ

Search TOXLINE

nickel AND (worker* OR industr* OR | Search | Clear | Help

Add chemical synonyms and CAS numbers to search: (•) Yes ( ) No

Search in:
- ( ) TOXLINE Special
- ( ) TOXLINE Core on PubMed
- (•) Both

Search fields:
- (•) All fields
- ( ) Titles
- ( ) Authors (e.g., Smith H)

Search: ( ) exact words (•) singular & plural forms ( ) word variants

Search records with: ( ) the phrase (•) all words ( ) any words

25000 Maximum records returned

Year of Publication: 2003 through 2005

Can select range of years

Only search documents added in the last ____ months.

TOXLINE Components

All
ANEUPL
BIOSIS
CIS
CRISP
DART

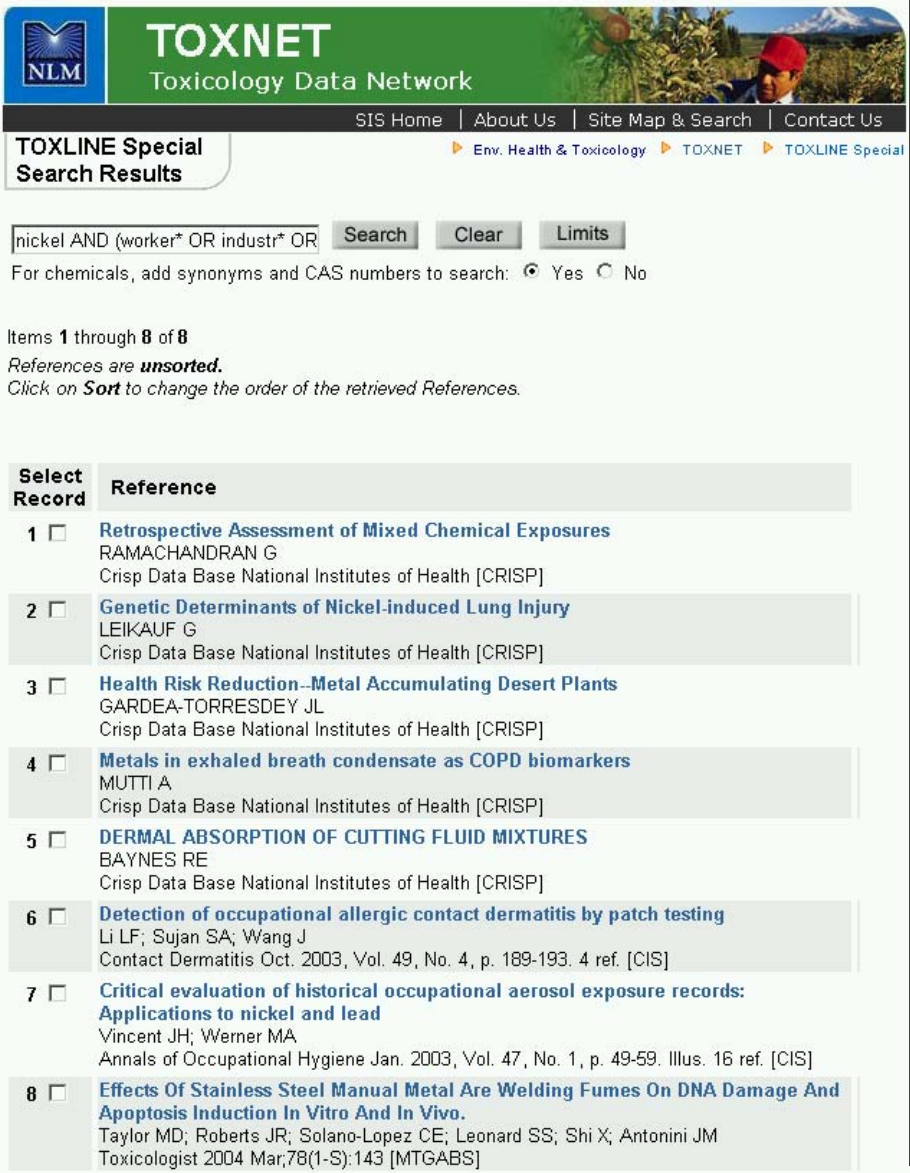
Language

All
English
Afrikaans
Arabic
Armenian
Azerbaijani

To select more than one component, click while holding the CTRL (PC) or CMD (Mac) key.

Search | Browse the Index

Full Search:
Nickel AND (worker* OR industr* OR occupation*)



TOXNET
Toxicology Data Network

SIS Home | About Us | Site Map & Search | Contact Us

TOXLINE Special Search Results

Env. Health & Toxicology ▸ TOXNET ▸ TOXLINE Special

nickel AND (worker* OR industr* OR | Search | Clear | Limits

For chemicals, add synonyms and CAS numbers to search: (•) Yes ( ) No

Items **1** through **8** of **8**

*References are **unsorted.***
*Click on **Sort** to change the order of the retrieved References.*

Select Record	Reference
1 ☐	**Retrospective Assessment of Mixed Chemical Exposures** RAMACHANDRAN G Crisp Data Base National Institutes of Health [CRISP]
2 ☐	**Genetic Determinants of Nickel-induced Lung Injury** LEIKAUF G Crisp Data Base National Institutes of Health [CRISP]
3 ☐	**Health Risk Reduction--Metal Accumulating Desert Plants** GARDEA-TORRESDEY JL Crisp Data Base National Institutes of Health [CRISP]
4 ☐	**Metals in exhaled breath condensate as COPD biomarkers** MUTTI A Crisp Data Base National Institutes of Health [CRISP]
5 ☐	**DERMAL ABSORPTION OF CUTTING FLUID MIXTURES** BAYNES RE Crisp Data Base National Institutes of Health [CRISP]
6 ☐	**Detection of occupational allergic contact dermatitis by patch testing** Li LF; Sujan SA; Wang J Contact Dermatitis Oct. 2003, Vol. 49, No. 4, p. 189-193. 4 ref. [CIS]
7 ☐	**Critical evaluation of historical occupational aerosol exposure records: Applications to nickel and lead** Vincent JH; Werner MA Annals of Occupational Hygiene Jan. 2003, Vol. 47, No. 1, p. 49-59. Illus. 16 ref. [CIS]
8 ☐	**Effects Of Stainless Steel Manual Metal Are Welding Fumes On DNA Damage And Apoptosis Induction In Vitro And In Vivo.** Taylor MD; Roberts JR; Solano-Lopez CE; Leonard SS; Shi X; Antonini JM Toxicologist 2004 Mar;78(1-S):143 [MTGABS]

NCBI PubMed National Library of Medicine NLM

All Databases | PubMed | Nucleotide | Protein | Genome | Structure

Search PubMed for nickel AND (worker* OR industr* OR occupation*) A | Go | Clear | Save Search

Limits | Preview/Index | History | Clipboard | Details

Display Summary | Show 20 | Sort by | Send to

All: 184 | Review: 21

About Entrez
Text Version

Entrez PubMed
Overview
Help | FAQ
Tutorial
New/Noteworthy
E-Utilities

PubMed Services
Journals Database
MeSH Database
Single Citation Matcher
Batch Citation Matcher
Clinical Queries
Special Queries
LinkOut
My NCBI (Cubby)

Related Resources
Order Documents
NLM Mobile
NLM Catalog
NLM Gateway
TOXNET
Consumer Health
Clinical Alerts
ClinicalTrials.gov
PubMed Central

Items 1 - 20 of 184

☐ 1: Chandra S, Chauhan LK, Murthy RC, Saxena PN, Pande PN, Gupta SK.
Comparative biomonitoring of leachates from hazardous solid waste of two industries using Allium test.
Sci Total Environ. 2005 Jul 15;347(1-3):46-52.
PMID: 16084966 [PubMed - in process]

☐ 2: Orisakwe OE, Asomugha R, Afonne OJ, Anisi CN, Obi E, Dioka CE.
Impact of effluents from a car battery manufacturing plant in Nigeria on water, soil, and food qualities.
Arch Environ Health. 2004 Jan;59(1):31-6.
PMID: 16053207 [PubMed - indexed for MEDLINE]

☐ 3: Seet RC, Johan A, Teo CE, Gan SL, Lee KH.
Inhalational nickel carbonyl poisoning in waste processing workers.
Chest. 2005 Jul;128(1):424-9.
PMID: 16002966 [PubMed - indexed for MEDLINE]

☐ 4: Coyle YM, Hynan LS, Euhus DM, Minhajuddin AT.
An ecological study of the association of environmental chemicals on breast cancer incidence in Texas.
Breast Cancer Res Treat. 2005 Jul;92(2):107-14.
PMID: 15986119 [PubMed - in process]

☐ 5: Clemens F, Verma R, Ramnath J, Landolph JR.
Amplification of the Ect2 proto-oncogene and over-expression of Ect2 mRNA and protein in nickel compound and m
cell lines.
Toxicol Appl Pharmacol. 2005 Aug 7;206(2):138-49.
PMID: 15967202 [PubMed - indexed for MEDLINE]

☐ 6: Rank J, Jensen K, Jespersen PH.
Monitoring DNA damage in indigenous blue mussels (Mytilus edulis) sampled from coastal sites in Denmark.
Mutat Res. 2005 Aug 1;585(1-2):33-42.
PMID: 15951227 [PubMed - indexed for MEDLINE]

☐ 7: Denays R, Kumba C, Lison D, De Bels D.
First epileptic seizure induced by occupational nickel poisoning.
Epilepsia. 2005 Jun;46(6):961-2.
PMID: 15946340 [PubMed - indexed for MEDLINE]

Part V

TRI, Specialty Files, New Initiatives

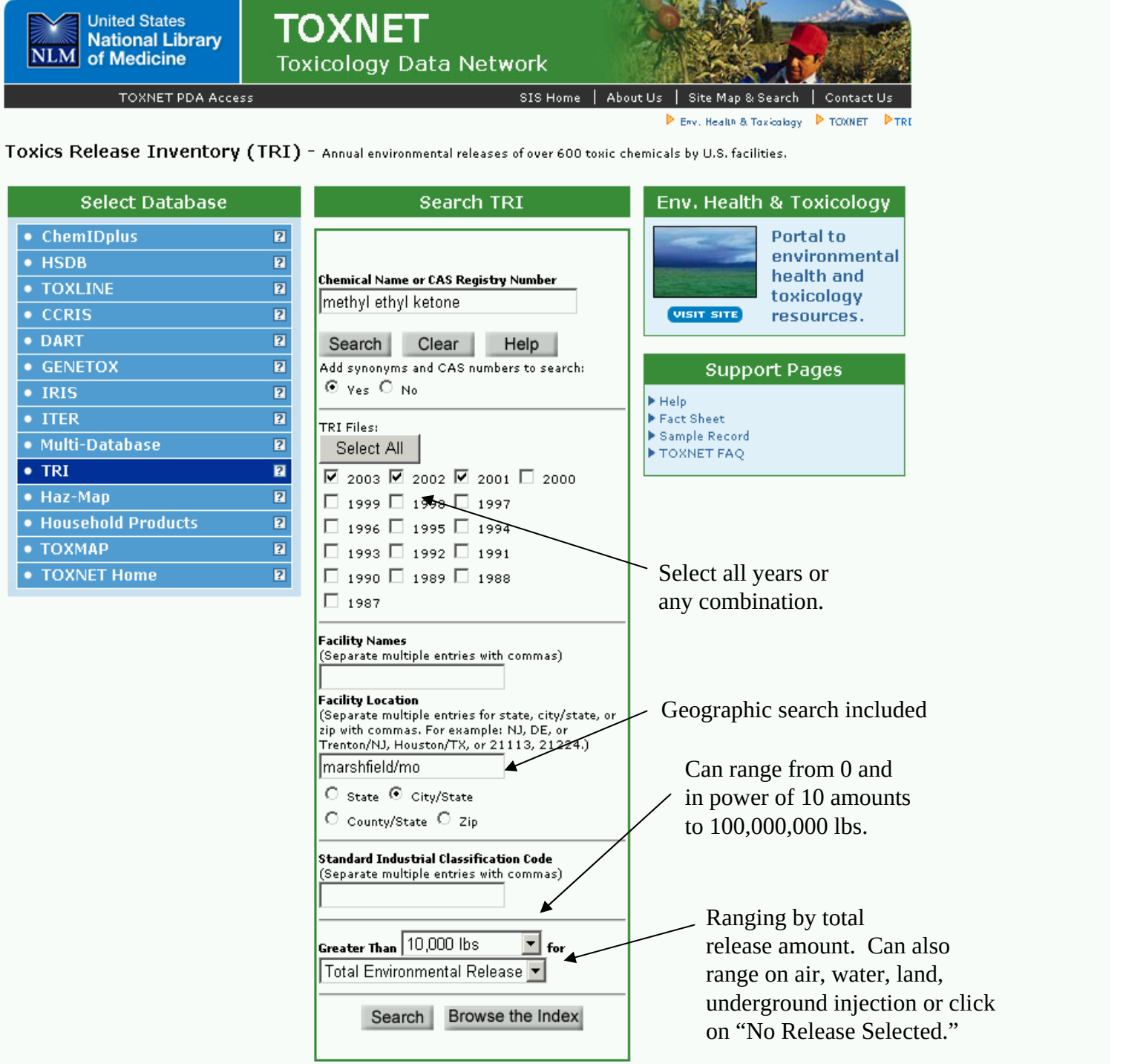
Toxics Release Inventory (TRI)
U.S. Environmental Protection Agency (EPA)

TRI 87-03 (17 years) – About 1,500,000 Records

- Facility Identification (Facility Name, Address, Phone, etc.)
- Substance Identification (Chemical Name, CAS RN, Uses, etc.)
- Environmental Release of Chemical (in Air, Water, Land, Underground Injection)
- Waste Treatment
- Off-Site Waste Treatment
- Source Reduction and Recycling (Quantity Released, Energy Recovery, Quantity Recycled, Quantity Treated)

TRI Background

- Right-to-Know Movement – Workplace, Community
- OSHA Hazard Communication Standard – 1983
- SUPERFUND = CERCLA (1980)
- Bhopal (1984) and smaller scale chemical disasters
- SARA (Superfund Amendments and Reauthorization Act) (1986)
  - Title 3 = Emergency Planning and Community Right-to-Know Act
    - Section 313 = Toxic Release Reporting
- Pollution Prevention Act of 1990



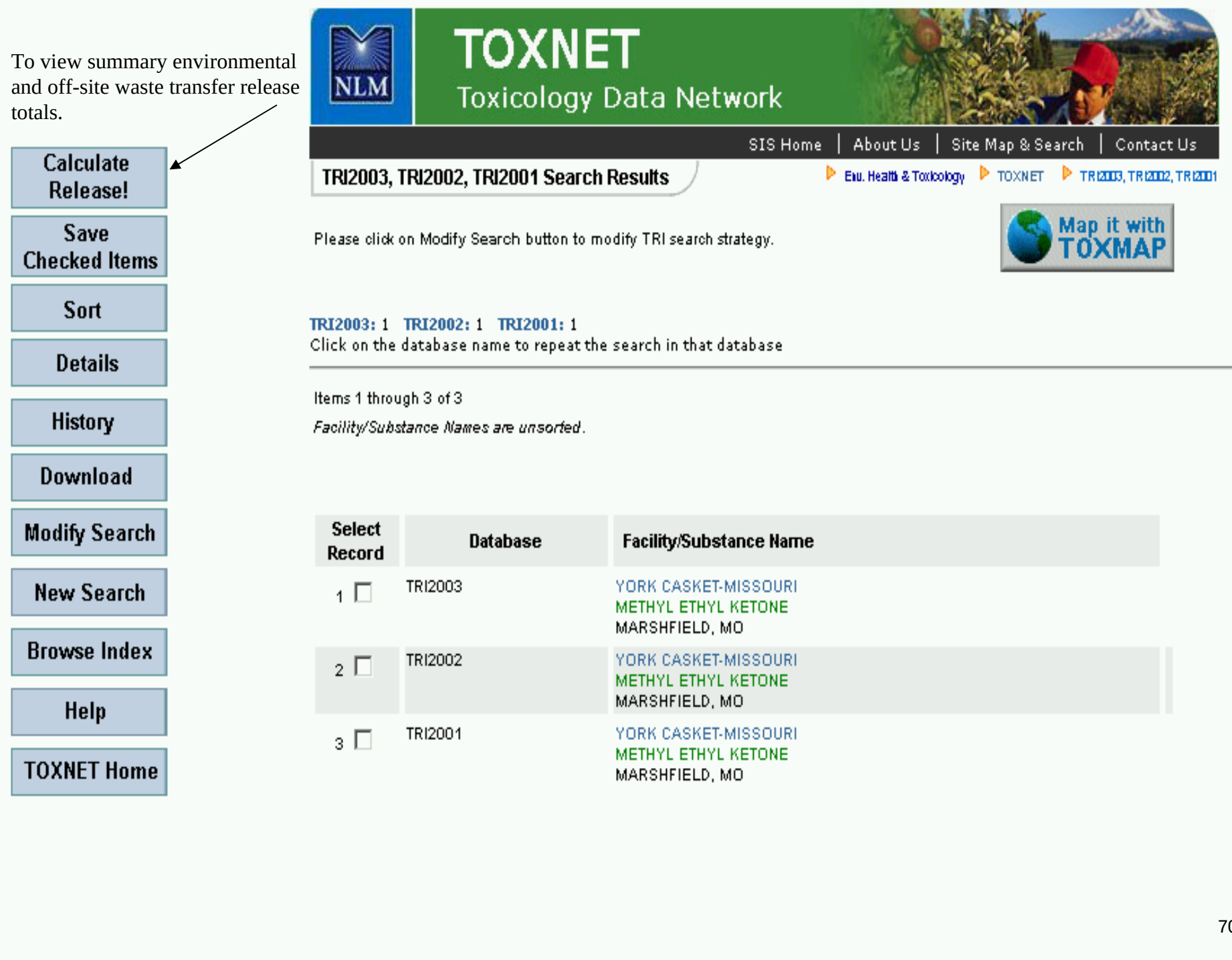
Select all years or any combination.

Geographic search included

Can range from 0 and in power of 10 amounts to 100,000,000 lbs.

Ranging by total release amount. Can also range on air, water, land, underground injection or click on “No Release Selected.”

To view summary environmental and off-site waste transfer release totals.



Including TOXLINE and ChemIDplus.

Contents
Contract all categories
Expand all categories
Select Clear

- FULL RECORD
- Facility Identification
- Substance Identification
- Environmental Release of Chemical
- Waste Treatment
- Off-Site Waste Transfer
- Source Reduction and Recycling
- Administrative Information

Mapping capability.

Map it with TOXMAP

TRI2003

METHYL ETHYL KETONE
YORK CASKET-MISSOURI
MARSHFIELD, MO
For other data, click on the Table of Contents

Environmental Release of Chemical:

Non-Point Air Emissions Estimates:
Non-Point Air Release: 2,500 lbs./rep yr. 2003
Basis of Estimate: (C) Mass Balance Calculations

Point Air Emissions Estimates:
Point Air Release: 24,100 lbs./rep yr. 2003
Basis of Estimate: (C) Mass Balance Calculations

Total Air Release: 26,600 lbs./rep yr. 2003

Water Discharge Estimates:
Receiving Stream: NA
Water Release: NA

Total Water Release: 0 lbs./rep yr. 2003

Releases to Underground Injection:
Underground Injection Well Class: Underground Injection On-site to Class I wells
Underground Injection Release: NA

Underground Injection Well Class: Underground Injection On-site to Class II-V wells
Underground Injection Release: NA

Underground Injection Total: 0 lbs./rep yr. 2003

Land Release Estimates:
Disposal Method: RCRA Subtitle C Landfills
Land Release: NA

Disposal Method: Other Landfills
Land Release: NA

Disposal Method: Land Treatment/Application/Farming
Land Release: NA

Disposal Method: RCRA Subtitle C Surface Impoundments
Land Release: NA

Disposal Method: Other Surface Impoundment
Land Release: NA

Disposal Method: Other Disposal
Land Release: NA

Total Land Release: 0 lbs./rep yr. 2003

Total Environmental Release: 26,600 lbs./rep yr. 2003

United States National Library of Medicine

TOXMAP
Environmental Health e-Maps

Chemical

Reference Info

HSDB
- Human Health Effects
- Manufacturing/Use Info
- Env. Fate / Exposure

ATSDR
- ToxFAQs & Public Health Statements
- Public Health Assessments
- General Documents

Chemical & Map Area

Toxicology Biblio. Info

Search: chemical & places

- [x] TOXLINE Special
- [x] TOXLINE Core on PubMed

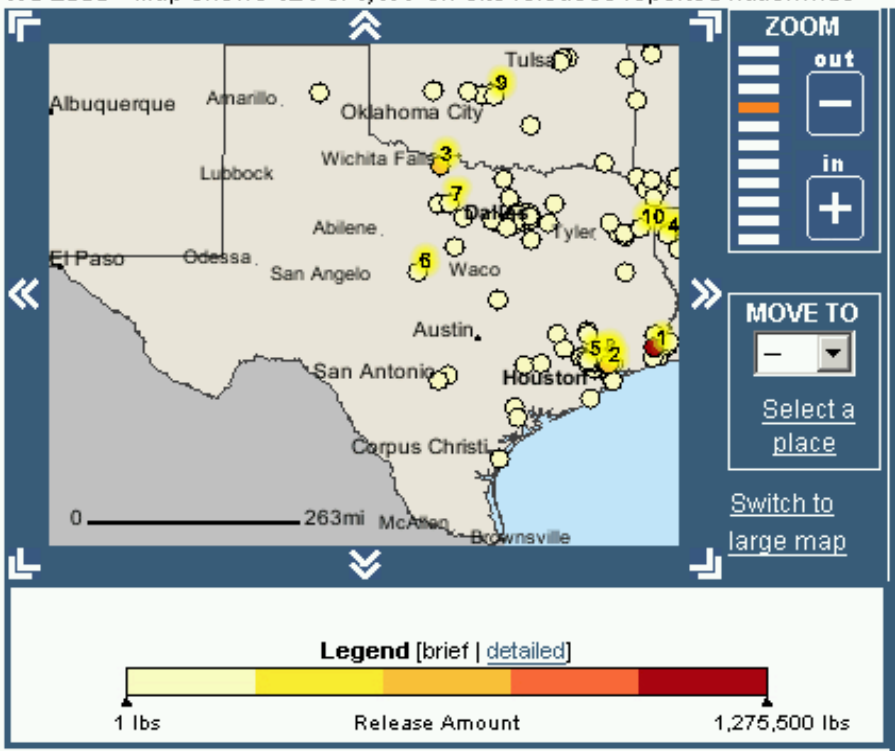
Questions

- What TRI chemicals are mapped in TOXMAP?
- Does TOXMAP show all sources of toxic chemicals released into the environment?
- How accurate is TRI data?

METHYL ETHYL KETONE (78-93-3)

TRI-2003 - Map shows **121** of **1,477** on-site releases reported nationwide

Print this map



Map Options

- Search for another chemical
- Start over

Apply to this map

- U.S. Census Data
- Reference Data

Facilities reporting to TRI

Hide list

Page 1 of 13

(121 releases total)

1. EXXONMOBIL OIL BEAUMONT REFINERY
2. EXXONMOBIL REFINING & SUPPLY BAYTOWN REFINERY
3. TEXAS RECREATION CORP
4. CALUMET LUBRICANTS CO SHREVEPORT REFINERY
5. SOUTHLINE METAL PRODUCTS CO
6. 3M COBROWNWOOD
7. AERO-MARINE ENG. INC.
8. LYONDELL CHEMICAL CO
9. U.S. AIR FORCE TINKER AFB
10. CROMPTON CORP MARSHALL FACILITY

Whom do I contact with questions and/or suggestions?

more...

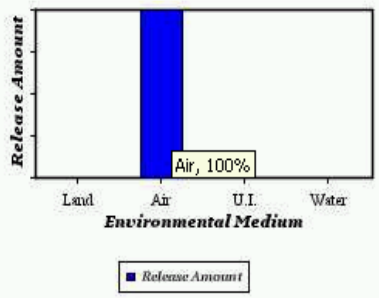
1. EXXONMOBIL OIL BEAUMONT REFINERY **EPA Facility Number:** 77701BMNTREASTE top

1795 BURT STREET
BEAUMONT, TX 77704

Emissions Estimates:
METHYL ETHYL KETONE

Environmental Medium	Release Amount (lbs./rep yr. 2003)
Air	1,108,900
TOTAL	1,108,900

Distribution By Medium*



*Small values may not be visible on chart. Refer to Chemical Table at left

Details about this release

All chemicals reported by this facility

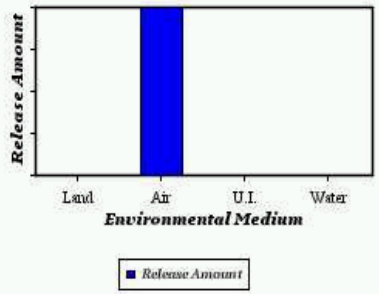
2. EXXONMOBIL REFINING & SUPPLY BAYTOWN REFINERY **EPA Facility Number:** 77522XXNBY2800D top

2800 DECKER DRIVE
BAYTOWN, TX 77520-2099

Emissions Estimates:
METHYL ETHYL KETONE

Environmental Medium	Release Amount (lbs./rep yr. 2003)
Land	11
Air	748,600
Water	440
TOTAL	749,051

Distribution By Medium*



*Small values may not be visible on chart. Refer to Chemical Table at left

Details about this release

All chemicals reported by this facility

Browse TRI Topics
Get TRI Data
Reporting Materials
Download *TRI-ME* Software
TRI Chemicals
TRI PBT Chemicals
Laws, Regulations and Executive Order
Guidance Documents
State TRI Programs
International TRI

Methyl Ethyl Ketone (MEK) To Be Removed From The Toxics Release Inventory (TRI) List: No Reports Are Required For The 2004 Reporting Year

Q: Why is MEK being removed from the TRI List?

A: EPA is taking the regulatory action necessary to remove MEK from the TRI list as required by the District Court.

In March of 1998, EPA denied a petition from the Ketones Panel of the Chemical Manufacturers Association (CMA) to remove MEK from the TRI list (63 FR 15195). The American Chemistry Council (ACC) (formerly CMA) challenged EPA's decision in U.S. District Court for the District of Columbia. On March 26, 2004, the District Court upheld EPA's petition denial on the basis that EPA's denial of the petition was lawful and appropriate. ACC appealed the District Court's decision to the D.C. Circuit Court of Appeals. On May 10, 2005, the D.C. Circuit Court vacated the District Court's decision and remanded "so that it can direct EPA to delete MEK from the TRI." The Circuit Court issued its mandate on June 13, 2005.

Q: What type of notice will EPA publish?

A: A final rule that removes MEK from the TRI list pursuant to the Court's order has been signed and will publish in the Federal Register shortly. The rule will make the removal of MEK effective for the 2004 reporting year.

Q: Why are no MEK reports required for reporting year 2004?

A: EPA will not require facilities to report MEK for the 2004 reporting year because the court order removing MEK from the TRI was issued before July 1, 2005. The final rule states that TRI facilities are not required to report releases of and other waste management information on MEK that occurred during the 2004 reporting year or for activities in the future.

Q: Should facilities that have already filed a 2004 TRI report for MEK withdraw those reports?

A: No, there is no need for facilities to withdraw MEK reports that they have already filed for reporting year 2004. EPA will not be including those reports in the 2004 public Toxics Release Inventory.

Search as Agent Disease Job Text Search

Haz-Map Search | More Searches | Haz-Map Help | Glossary | References

Browse Haz-Map

- **Hazardous Agents**
  1. By Types of Agents
  2. By Adverse Effects
  3. Alphabetically
- **Occupational Diseases**
  1. By Types of Diseases
  2. By **Jobs** and **Symptoms**
  3. Alphabetically
- **High Risk Jobs**
  1. By Types of Jobs
  2. Alphabetically

Haz-Map: Information on Hazardous Chemicals and Occupational Diseases
by
Jay A. Brown, M.D., M.P.H.

Haz-Map Fact Sheet | Download Haz-Map Brochure | List of All Topics

Specialized Information Services U.S. National Library of Medicine,
8600 Rockville Pike, Bethesda, MD 20894
National Institutes of Health

Customer Service: tehip@teh.nlm.nih.gov
Last updated: July 22, 2004

Search carpenters as Agent Disease Job Text Search

Haz-Map Search | More Searches | Haz-Map Help | Glossary | References

Browse Haz-Map

Search TOXNET

carpenters was searched as word(s)in all of the text fields. Results are sorted in relevancy ranked order.

Search results: 2 record(s) found in Agents table. Next Section

- Wood dust, all soft and hard woods
- Chlorothalonil

Search results: 1 record(s) found in Diseases table. Next Section Back to Top

- Nasal sinus cancer

Search results: 3 record(s) found in Jobs table. Next Section Back to Top

- Helpers--Carpenters
- Carpenters
- Cabinetmakers & Bench Carpenters

Search results: 1 record(s) found in Industries table. Next Section Back to Top

- Finish Carpentry Contractors

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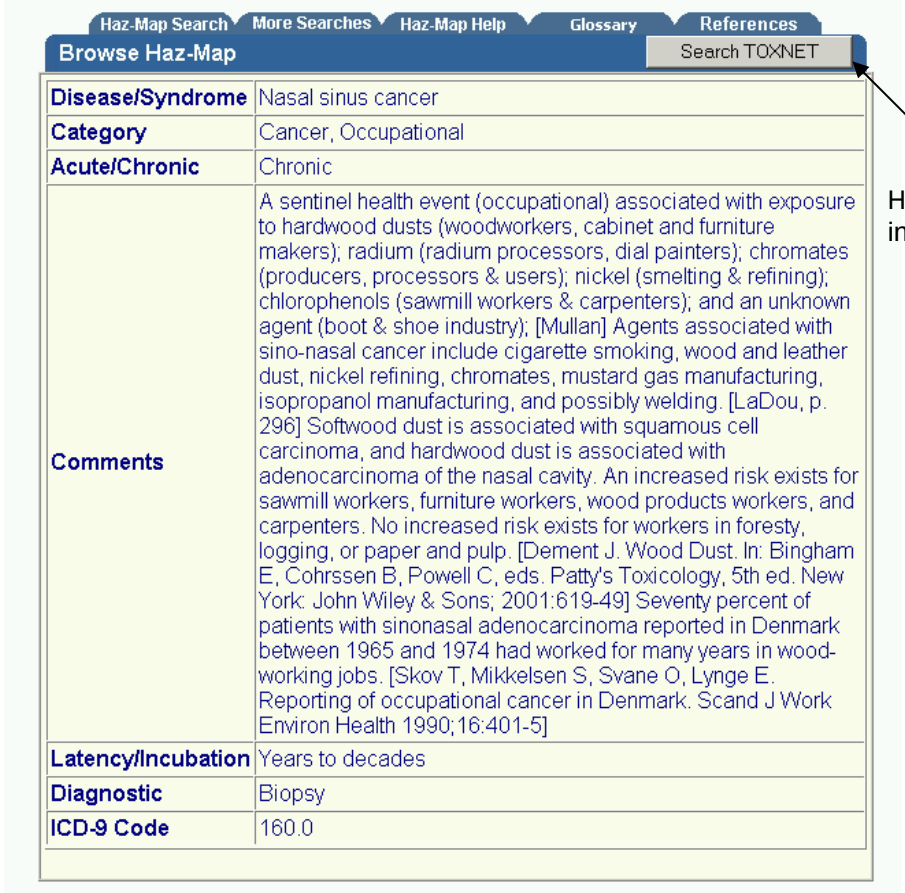

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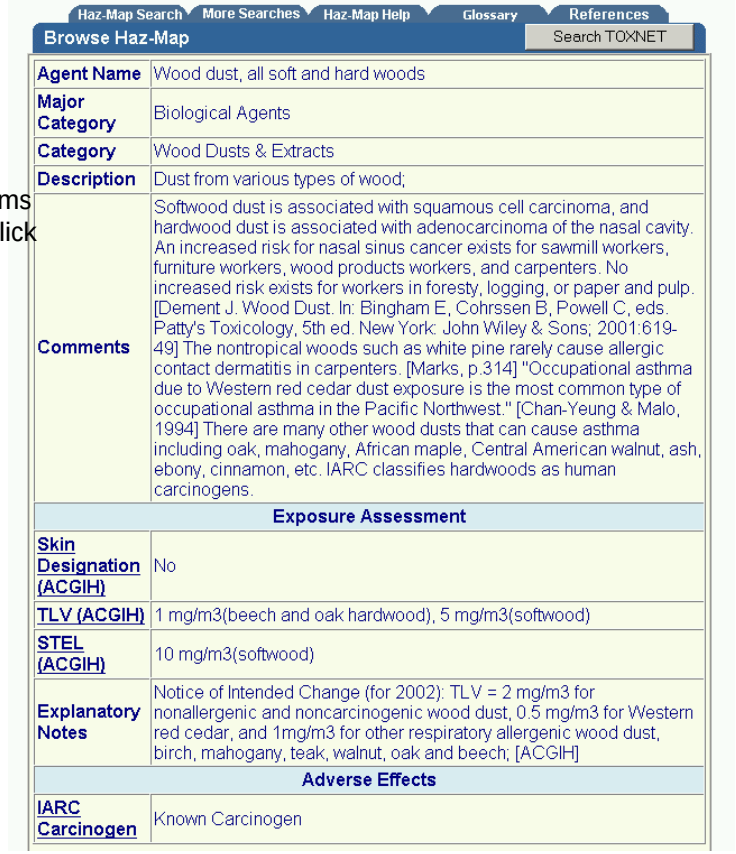

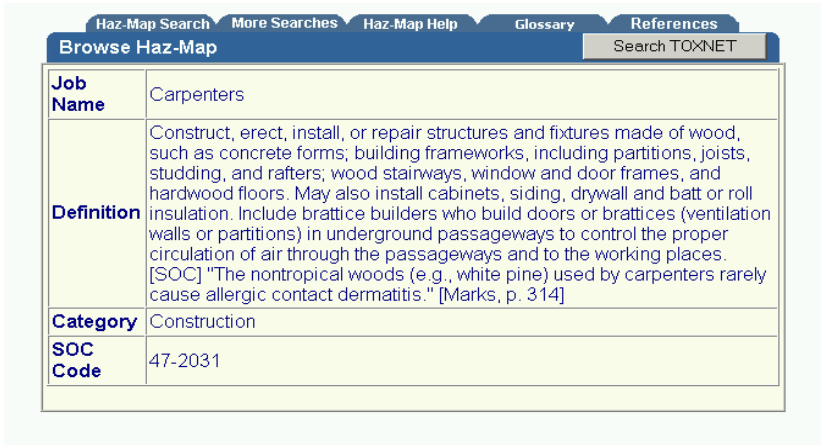

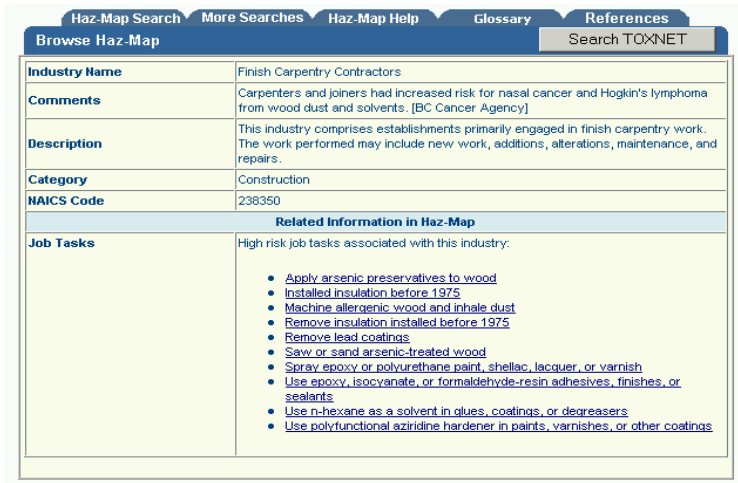

Household Products Database

National Institutes of Health
National Library of Medicine
Specialized Information Services

NLM

Home | Products | Ingredients | MSDS

Quick Search

Health & Safety Information on Household Products

Browse & Search

- Products
- Ingredients
- Material Safety Data Sheet (MSDS)

Support Pages

- About
- FAQ
- Help
- Glossary
- Contact Us

- Other Resources

What's under your kitchen sink, in your garage, in your bathroom, and on the shelves in your laundry room? Learn more about what's in these products, about potential health effects, and about safety and handling.

Information in the Household Products Database is taken from a variety of publicly available sources, including brand-specific labels and Material Safety Data Sheets (MSDS) prepared by manufacturers.

Find a product...

For advice if someone is poisoned, call your local Poison Center at (1-800-222-1222).

Household Products Database

National Institutes of Health
National Library of Medicine
Specialized Information Services

Home | Products | Ingredients | MSDS

Browse by Categories | Browse Alphabetically | Search

Choose a Product Category

Auto Products

Brake Fluid, De-icer, Lubricant, Sealant, and more...

Inside the Home

Air Freshener, Bleach, Cleaners, Toilet Bowl Cleaner, and more...

Pesticides

Animal Repellant, Fungicide, Herbicide, Insecticide, and more...

Landscape / Yard

Fertilizer, Lawn Care, Swimming Pool Products, and more...

Personal Care / Use

Antiperspirant, Hair Spray, Makeup, Shampoo, Soap, and more...

Home Maintenance

Caulk, Grout, Insulation, Paint, Putty, Stain, and more...

Arts & Crafts

Adhesive, Glaze, Glue Primer, Varnish, and more...

Pet Care

Flea & Tick Control, Litter, Stain/Odor Remover, and more...

About | FAQ | Product Recalls | Help | Glossary | Contact Us | Other Resources | Home

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Household Products Database

National Institutes of Health
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Home | Products | Ingredients | MSDS

Browse by Categories | Browse Alphabetically | Search

Search: old spice shave cr as Brand Name in All Product Categories Go

Brand Information

Brand Name: Old Spice Shave Cream
Form: aerosol foam
Product Category: Personal care/use >> Men's Products >> shaving cream/gel
Customer Service No.: 800-262-1637
Date Entered: 2001-05-31
Related Items: Products with similar usage in this database

Manufacturer

Manufacturer: Procter & Gamble Co.
Address: P.O. Box 599
City: Cincinnati
State: OH
Zip Code: 45201
Telephone Number: 513-983-1100
Fax Number: 513-562-4500
Toll Free Number: 800-543-7270
Date Info Verified: 2003-01-01
Related Items: Products by this manufacturer

Health Effects

Search TOXNET

The following information (Health Effects, Handling/Disposal, and Ingredients) is taken from the product label and/or the Material Safety Data Sheet (MSDS) prepared by the manufacturer. The National Library of Medicine does not evaluate information from the product label or the Material Safety Data Sheet.

Acute Health Effects: From MSDS:
ROUTES OF ENTRY: Skin, oral, eye, inhalation
HEALTH HAZARDS (ACUTE AND CHRONIC): Acute - eye: mild transient irritation; oral: gastrointestinal irritation.
Chronic - N/K

SIGNS OF SYMPTOMS OF EXPOSURE: Eye - transient burning/stinging/tearing
Oral - nausea, vomiting, diarrhea

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: N/K

Chronic Health Effects: MSDS: Chronic: None known
Carcinogenicity: The manufacturer's Material Safety Data Sheet (MSDS) does not address the subject of carcinogenicity.
First Aid: MSDS: EMERGENCY AND FIRST AID PROCEDURES: Eye - flush with water for 15 minutes; Oral - dilute with fluids; Skin - rinse thoroughly with water.
Health Rating: N
Flammability Rating: N
Reactivity Rating: N
HMIS Rating Scale: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe; N = No information provided by manufacturer; * = Chronic Health Hazard
MSDS Date: 1998-08-19

Handling/Disposal

Handling: MSDS: PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Store in a cool dry area in a properly labeled, tightly closed container.
OTHER PRECAUTIONS: Do not expose to heat or ignition source.

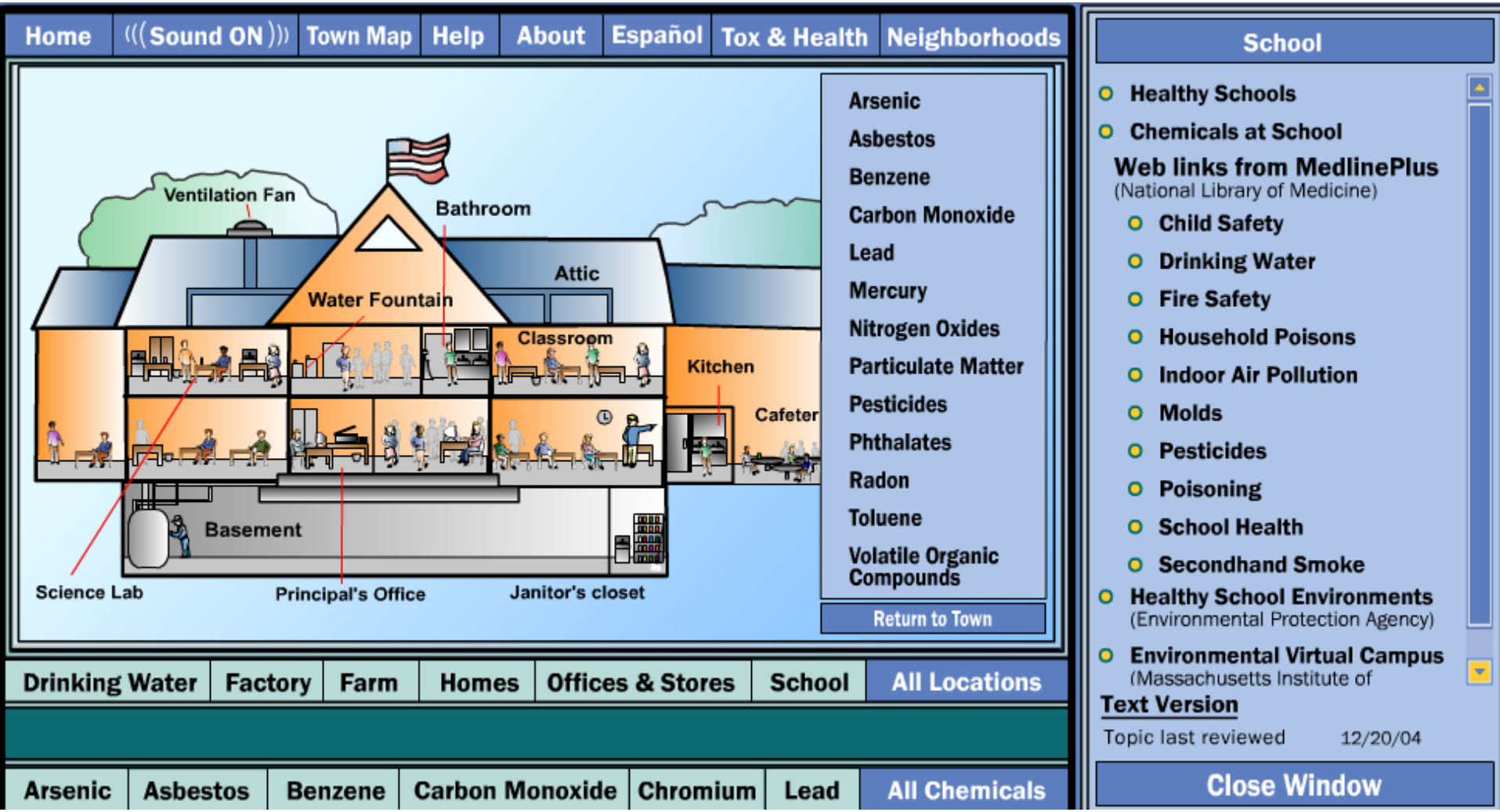
Disposal: MSDS: WASTE DISPOSAL METHOD:
Dispose in accordance with local, state, and Federal regulations.

Ingredients from MSDS/Label

Chemical	CAS No / Unique ID	Percent
Isobutane	000075-28-5	
Butane	000106-97-8	
Propane	000074-98-6	
Fragrance(s)/perfume(s)	000000-00-1	
Lanolin	008006-54-0	
Stearic acid	000057-11-4	
Triethanolamine	000102-71-6	
Sodium lauryl sulfate (SLS)	000151-21-3	
Laureth-23	999999-11-0	
Methylparaben	000099-76-3	
Aloe extract	008001-97-6	
Water	007732-18-5	

Highlight terms in text and click

TOX-TOWN


Home
Sound ON
Town Map
Help
About
Español
Tox & Health
Neighborhoods
Ventilation Fan
Bathroom
Attic
Water Fountain
Classroom
Kitchen
Cafeter
Basement
Science Lab
Principal's Office
Janitor's closet
Arsenic
Asbestos
Benzene
Carbon Monoxide
Lead
Mercury
Nitrogen Oxides
Particulate Matter
Pesticides
Phthalates
Radon
Toluene
Volatile Organic Compounds
Return to Town
Drinking Water
Factory
Farm
Homes
Offices & Stores
School
All Locations
Arsenic
Asbestos
Benzene
Carbon Monoxide
Chromium
Lead
All Chemicals
School
Healthy Schools
Chemicals at School
Web links from MedlinePlus
(National Library of Medicine)
Child Safety
Drinking Water
Fire Safety
Household Poisons
Indoor Air Pollution
Molds
Pesticides
Poisoning
School Health
Secondhand Smoke
Healthy School Environments
(Environmental Protection Agency)
Environmental Virtual Campus
(Massachusetts Institute of
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National Institutes of Health

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Go
NLM Home | Contact NLM | Site Map | FAQs

Environmental Health and Toxicology
SIS Specialized Information Services

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Enviro-Health Links - Education, Careers, and Outreach

More to Explore

Environmental Health Information Outreach

ToxTutor

Tox Web Links

This Web site aggregates resources related to toxicology and environmental health education, its study and teaching, career paths and opportunities, including accreditation, and outreach for the public.

Academic Program Directories

{Formal undergraduate and graduate on - site programs leading to degrees}

- Graduate Programs in Toxicology
  - Academic and Post - Doctoral Programs and Web Sites
    {U.S. Society of Toxicology}

More to Come

- HSDB Automated Indexing
- Updating and Expansion of HSDB's Med Surveillance
- World Library of Toxicology, Chemical Safety, and Environmental Health
- Revision of Tox-Tutor in partnership with U.S. SOT
- Drugs and Lactation Database
- TOXREF – Therapeutic/Normal, Toxic, Lethal Levels of chemicals in biological samples
- REMM – Radiological Event Medical Management
- Endocrine Tox Database – Silent Spring Institute
- Environmental Health Nomenclature Collaboration
- Environmental Information Coalition/Earth Portal
- Public Health Law Information Project
- TOX-SEEK – Multi-Resource Search Engine

World Library of Toxicology, Chemical Safety, and Environmental Health

Home | North America | South America | Europe | Asia | Middle East | Africa | Oceania | Antarctica

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Search

or click on map below:

Select a country

Select an International Organization

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Last updated: August 15, 2005

Part VI

Non-NLM Resources

Professional Associations

- Society of Toxicology – http://www.toxicology.org/
- Society of Environmental Toxicology and Chemistry – http://www.setac.org
- American Academy of Clinical Toxicology – http://www.clintox.org
- American Association of Poison Control Centers – http://www.aapcc.org
- Society of Risk Analysis – http://www.sra.org
- Other groups in environmental health, occupational health, industrial hygiene, health physics etc.

U.S. Government Resources

- Agency for Toxic Substances and Disease Registry (ATSDR) – http://www.atsdr.cdc.gov
- Environmental Protection Agency (EPA) – http://www.epa.gov
- Food and Drug Administration – http://www.fda.gov
  - National Center for Toxicological Research – http://www.fda.gov/nctr
- National Institute for Occupational Safety and Health – http://www.cdc.gov/niosh

U.S. Government Resources (continued)

- National Institute of Environmental Health Sciences – http://www.niehs.nih.gov
- National Toxicology Program – http://ntp-server.niehs.nih.gov
- U.S. Chemical Safety and Hazard Investigation Board – http://www.csb.gov

Some State Government Sites

- New Jersey Department of Health and Senior Services – Division of Epidemiology, Environmental and Occupational Health – http://www.state.nj.us/health/eoh
- California – Office of Environmental Health Hazard Assessment – http://www.oehha.ca.gov

Some Chemical Databases

- Chemfinder – http://www.chemfinder.com
- Scorecard (from Environmental Defense) – http://www.scorecard.org
- Environmental Fate Databases & more (from Syracuse Research Corporation) –http://www.syrres.com/esc/efdb.htm
- EXTOXNET (pesticide information) – http://ace.orst.edu/info/extoxnet

Some Chemical Databases (continued)

- PAN (Pesticide Action Network) Pesticides Database – http://www.pesticideinfo.org
- Where to Find Material Safety Data Sheets on the Internet – http://www.ilpi.com/msds
- RxList, the Internet Drug Index – http://www.rxlist.com
- International Programme for Chemical Safety (IPCS) INCHEM – http://www.inchem.org/

Also Consider:

- Scirus - Elsevier Science - http://www.scirus.com/

Other Web Sites

- UNEP (United Nations Environment Programme) Chemicals – http://www.chem.unep.ch
- Intergovernmental Forum on Chemical Safety - http://www.who.int/ifcs/
- Inter-Organization Programme for the Sound Management of Chemicals - http://www.who.int/iomc/
- National Council for Science and the Environment – http://www.ncseonline.org
- Society of Environmental Journalists – http://www.sej.org
- TEHIP/NLM Web Links – http://sis.nlm.nih.gov/enviro/toxweblinks.html

Some Commercial ($) Databases

- ARIEL Insight – Ariel Research – http://www.arielresearch.com
- BIOSIS Previews – BIOSIS – http://www.biosis.org
- Chemical Abstracts & CAS Registry – Chemical Abstracts Service – http://www.cas.org (also http://stnweb.cas.org)
- CCINFOweb (CHEMINDEX &IPCS/INCHEM are free) – CCOHS – http://www.ccohs.ca
- CIS Database (on occupational health) (from the International Labour Office) (free as a TOXLINE subfile) – http://www.ilo.org/public/english/protection/safework/cis/products/cisdoc.htm

Some Commercial ($) Databases (continued)

- EMBASE – Elsevier Science – http://www.embase.com
- Environment Abstracts – Congressional Information Service – available from Dialog - http://www.dialog.com/
- MICROMEDEX Databases – MICROMEDEX – http://www.micromedex.com
- Science Direct - Elsevier - http://www.sciencedirect.com/
- Toxicology Abstracts – Cambridge Scientific Abstracts – http://www.csa.com
- Web of Science – ISI – http://www.isinet.com/

Some Web Search Engines and Tools

- AltaVista – http://www.altavista.com
- Google – http://www.google.com
- Hotbot – http://www.hotbot.com
- Yahoo – http://www.yahoo.com
- Meta Search Engines
  - Metacrawler – http://www.go2net.com
  - Dogpile – http://www.dogpile.com
  - Ask Jeeves – http://www.ask.com
- Searchenginewatch – http://www.searchenginewatch.com
- Mailing List Directories – CATALIST - http://www.lsoft.com/lists/listref.html

TOXNET Exercises

[Note: There is typically more than one "right" approach to answering each of the following questions. Answers, where they are provided, are merely representative, not definitive. Explore.]

TOXICOLOGY DATA FILES

1. What is the CAS registry number and octanol/water partition coefficient of 2,6-dinitrotoluene and what is this chemical used for? [HSDB]

   In HSDB, search for **2,6-dinitrotoluene** and click on the 2,6-dinitrotoluene record on the Search Results Page. In the Table of Contents, expand **Chemical/Physical Properties** and click on **Octanol/Water Partition Coefficient**. Expand **Manufacturing/Use Information** and click on **Major Uses**.

2. Has 2,6-dinitrotoluene been shown to be mutagenic in the Ames salmonella test? [HSDB]

   MODIFY above search to **2,6-dinitrotoluene ames,** and click on **2,6-dinitrotoluene** record.
   Note: You may also wish to check other files, such as GENE-TOX and CCRIS.

3. What is the oral LD50 of caffeine in male rabbits? Also, click on **DETAILS** to view the search strategy. [HSDB]

   Search for **oral ld50 caffeine male rabbits** and click on **caffeine** record.
   Note: On target hit displays first.

4. Has caffeine been studied as a tumor promoter? Does it cause mutations? [CCRIS, GENE-TOX]

   From HSDB caffeine record (above), click on **Other Files**. Select CCRIS. Expand Studies data in Table of Contents and check the boxes for **Tumor Promotion Studies** and **Mutagenicity Studies.** Return to HSDB. Click on **Other Files** again and select GENE-TOX. **Select Mutagenicity Studies**.

5. Which of the toxicology data files contain information on ammonia? What is the Inhalation Reference Concentration (RfC) of ammonia? (Note: the RfC is a non-carcinogenic risk assessment parameter) Also, view the DOWNLOAD options available. [Multi-Data Base and IRIS]

   Select the **Multi-Database** option on the TOXNET main page. Search for **ammonia**. Click on the IRIS ammonia record. Expand **Chronic Health Hazard Assessment for Noncarcinogenic Effects** in Table of Contents. Click on **Reference Concentration for Chronic Inhalation Exposure (RfC)**.

TOXNET Exercises (continued)

6. What are some chemicals used in leather tanning and what are their human health effects? [HSDB]

   Use the **limits** option of HSDB. Search for **leather tanning** in HSDB. Expand **Manufacturing/Use Information** and check the box for **Major Uses**. Click on several retrieved chemical records to view their "best sections" and click on **Human Health Effects** for these records in the Table of Contents.

7. Does nitrobenzene have any effect on sperm? Find some recent general articles on nitrobenzene. [HSDB, TOXLINE Core]

   Search for **nitrobenzene sperm** in HSDB. Click on nitrobenzene record and view **Best Sections.** Click on **Other Files and** click on **TOXLINE Core.**

8. How does the U.S. Environmental Protection Agency characterize the carcinogenicity of methylmercury? [IRIS]

   Search for **methylmercury** in IRIS and select the methylmercury record on the Search Results page. Expand category **II. Carcinogenicity Assessment for Lifetime Exposure**. Click on **II.A. Evidence for Human Carcinogenicity**.

9. Find any information on the occurrence or effects of methyl parathion in soil. Search using the chemical's CAS Registry Number – 298-00-0. [HSDB]

   Search HSDB for **298-00-0 soil** in the query box and scan the **Best Sections** of the methyl parathion record.

10. How do the Dutch RIVM (National Institute for Public Health and the Environment) and the U.S. EPA compare in their non-cancer oral risk values for chloroform? [ITER]

    Search for **chloroform**. View **Risk Data: Non-Cancer Oral Table**.

11. Use Boolean operators and phrase searching to look for information on lung cancer or bladder cancer in workers, in HSDB.

    Enter – **("lung cancer" [htox] OR "bladder cancer" [htox]) AND worker**

TOXNET Exercises (continued)

TOXICOLOGY LITERATURE FILES

1. Search TOXLINE Special for articles by C.N. Pope. Sort retrieval by primary author names. [TOXLINE Special]

   Search for "pope cn" in query box. On "Search Results" page, click on "SORT" button and sort by author.

2. Search TOXLINE Special and TOXLINE Core for phosphoric acid. Explore navigating through your retrieval, examining individual records, and going to linked records. [TOXLINE Special & Core]

   Search for **phosphoric acid** in query box. Click on **Details** buttons in both databases to view the respective search strategies. Navigate the pages. Click on records of interest and on hot-linked data – e.g. keywords, author names, CAS registry numbers. Check for related records.

3. Find articles focused on the effects of diet on breast cancer. [TOXLINE Special & Core]

   Try a **Limits** search. Enter **diet breast cancer** in the query box. Limit to **Titles.** Select **Both** TOXLINE Special and TOXLINE Core.

4. Find journal references on the treatment of arthritis by the anti-inflammatory agent Celebrex. [TOXLINE Core]

   Search for **arthritis celebrex** in the query box. Select the TOXLINE Core radio button.

5. Use the EMIC subfile to determine whether peppermint been tested for mutagenicity. Check for English language articles. [TOXLINE Special]

   Conduct a Limits search. Select EMIC as a TOXLINE Component and English as a language from the drop down menus. Enter **peppermint** in the query box.

6. Find information on the effects of alcohol on the fetus. [DART Special and DART Core]

   Select **Both** DART Special and DART CORE. Search for **alcohol fetus** in the query box.

TOXNET Exercises (continued)

7. Search TOXLINE Core directly on PubMed to find articles on toxicological aspects of jellyfish. Search for articles published from 2000-2003 in English. [TOXLINE Core via PubMed directly].

   Go to PubMed at http://pubmed.gov. Click on **Limits**. Enter **jellyfish** in the search query box. Limit the search to the toxicology subfile, the publication dates to 2000-2004 and the language to English.

8. Find information on renal failure associated with amanita mushroom poisoning. Look for English language articles published from 1995 to 2004. [TOXLINE Special]

   Conduct a Limits search. Enter **amanita renal failure** in the query box. Restrict publication years to 1995-2003. Select English from the dropdown menu.

9. Use the HISTORY feature to look for hospital or medical waste incineration in TOXLINE Special. [TOXLINE Special]

   First search for **"hospital waste" incinerat***. (Using quotes looks for the terms together as a phrase. The asterisk is for truncation and searches for words such as incinerate, incineration, etc.) Then search for **"medical waste" incinerat***. Press the HISTORY button and combine your two searches according to the instructions, and using an "OR" operator.

TOXIC CHEMICAL RELEASES

1. How much ammonia was released to the air and water in Milwaukee in 1999?

   In TRI99, search for **ammonia** in the "chemical name" query box and for **Milwaukee/WI** in the "facility location (city/state)" query box. Click on "Search." Click the top, left button "Calculate Release."

2. How much of the above releases came from Lesaffre Yeast Corporation and in what body of water did this facility discharge ammonia?

   After above search, use the browser's "back" button to return to the "TRI Search Results" screen. Click on the Lesaffre Yeast Corporation record. Click on "Environmental Release of Chemical" in the Table of Contents. Scroll down to "Water Discharge Estimates."

TOXNET Exercises (continued)

3. What chemicals have been released to the air, in amounts greater than 100,000 pounds, over Old Hickory, Tennessee in 1995 and 1996? By what companies?

   Search for **Old Hickory Tennessee** in the "facility location (city/state)" query box. Select **greater than 100,000 pounds** for "total air release." Results page will display chemicals and companies.

4. Did Agilent Techs' Newark, California facility transfer any 1,2,4-trichlorobenzene off-site for treatment in 1996? How much? Where to?

   In TRI96, search for **1,2,4-trichlorobenzene** in the "chemical" query box, **agilent techs** in the "facility name" query box, and **newark california** in the "facility location (city/state)" query box. Click "Search." Click on "Off-Site Waste Transfer" in the Table of Contents.

5. What chemicals have been reported released in amounts over 1,000,000 pounds via underground injection in Texas in 1999, and what is the total sum of these releases.

   In TRI99, search for Texas as a state under Facility Location, and greater than 1,000,000 pounds as a range. Sorting the results will provide a clear display of the chemicals. Click on the Calculate Release button to view the sum total of the underground injection releases.

6. How many individual TRI98 reports have been filed on barium compounds? Display the U.S. geographical distribution of reported releases.

   In TRI98, search **barium compounds** in the chemical query box. Note the number of records retrieved listed at the top of the Search Results page. Click on "Map it with TOXMAP" to view a map of releases.

TOXNET Exercises (continued)

HAZ-MAP

1. What are some high risk tasks associated with the job of carpet installation?

   Click on **High Risk Jobs/Alphabetically**. Choose the letter "C" and click on **Carpet Installers**.

2. What are some hazards associated with the use of cobalt in the workplace?

   Enter **Cobalt** in query box and click on "agent." Click on **Cobalt**. Click on **Cobalt** again to view potential hazards. For Extra Credit – highlight a term or phrase (e.g. "cobalt chloride skin allergy" and search **TOXLINE**.

3. What are some hazards of leather tanning?

   Perform a "text search" for **leather tanning** in the search query box. Click on first **leather tanning and finishing** as an Industry and then go back and click on **tanning leather** as a Process.

HOUSEHOLD PRODUCTS DATABASE

1. What is in Windex and are there any health dangers associated with it?

   Enter **Windex** in query box. Click on your choice of Windex cleaner. View ingredient and health effects information.

2. Compare the toxicities of various pesticides used to treat ants.

   Click on the "Products" tab. Click on **Pesticides**, then on **Insecticides** as a Category and **Ant** as a type. View the data on the various products.

3. What stick deodorants include the antibacterial ingredient triclosan?

   Click on Ingredients. Enter **triclosan** in query box. Click on triclosan. Scan list of products.

TOXNET Exercises (continued)

WORLD WIDE WEB

1. Explore EPA's voluminous Web site, particularly the **Databases and Software** section located by clicking on their home page's **Information Sources**. Locate IRIS, ECOTOX, the Toxics Release Inventory, and the Safe Drinking Water Information System. Use the Advanced Search box to find documents with **mercury** in the title. [**www.epa.gov**]

2. Locate a full-text article about the ban on ephedra in the March-October 2004 issue of the **FDA Consumer** magazine. [**www.fda.gov**]

3. What chemicals are on the list of "Known to be Human Carcinogens" in the National Toxicology Program's Year 2002 10th Report of Carcinogens? [**ntp-server.niehs.nih.gov**]

4. Find the Agency for Toxic Substances and Disease Registry's TOXFAQ profile on nickel. [**www.atsdr.cdc.gov**]

5. Check out the National Council for Science and the Environment's Web site and find recent Congressional Research Service (CRS) reports, under their National Library for the Environment section, on **pesticides**. [**www.ncseonline.org**]

6. Which Florida universities offer graduate programs in toxicology? Check the Society of Toxicology's Resource Guide to Careers in Toxicology (under Public Outreach/Career Resources) [**www.toxicology.org**]

7. Explore the variety of data sources containing information on acrylonitrile, by searching ChemFinder. [**www.chemfinder.com**]

8. Where and on what dates will the fourth Society of Environmental Toxicology and Chemistry's World Congress be held? [**www.setac.org**]

9. What is New Jersey's rank among states in total release hazardous air pollutants? Use Scorecard (from Environmental Defense). Start by clicking on Air/HazardousAir Pollutants. [**www.scorecard.org**]

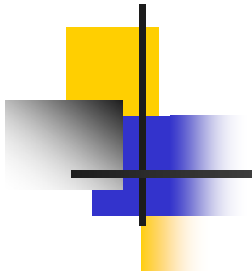
10. Use the BIOLOG file (one of Syracuse Research Corporation's Environmental Fate Data Bases – EFDB) to find references on DDT in sewage. **[www.syrres.com/esc/efdb.htm]**

11. Find some peer-reviewed monographs on arsenic. **[www.inchem.org]**

12. What are some common side effects of the drug Vioxx? Consult MedlinePlus' Drug Information page (data from the USP). **[medlineplus.gov]**

13. Who makes Kill Zone Flea and Tick Killer 2000? What are its active ingredients? How have various governmental agencies rated the carcinogenic potential of these ingredients? [**www.pesticideinfo.org**]

14. How many poison control centers in Texas are certified by the American Association of Poison Control Centers (AAPCC)? What are their addresses? The AAPCC's Poison Center Lists includes a list of certified centers. Find the nation-wide toll-free poisoning emergency phone number. [**www.aapcc.org**]



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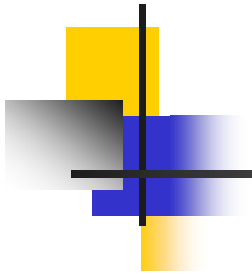
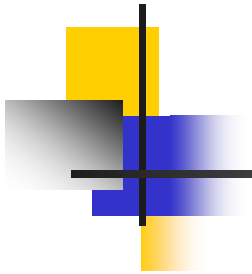


Notes



Notes

Course Evaluation

Course Name: _____

Course Location: _____

Date(s): _____

Thank you for attending this course. Please complete this form to help us evaluate and improve our training.

Up to now, I primarily used the following sources to obtain toxicology information:
❑ NLM and TOXNET (especially the following databases: _____)
❑ Other Databases: _____
❑ Did not search much

After today I expect to primarily use the following to obtain toxicology information:
❑ NLM and TOXNET (especially the following databases: _____)
❑ Other Databases: _____
❑ Will not search much

Circle your response:

	Strongly Agree	Agree	Disagree	Strongly Di
Knowledge Gained				
I acquired the knowledge and skills necessary to search TOXNET and other NLM and non-NLM toxicology databases.	4	3	2	1
Workbook				
The workbook is a valuable aid to this course.	4	3	2	1
The instructor(s)				
The instructors are proficient at conveying information.	4	3	2	1
The instructors are patient and open to questions.	4	3	2	1

(Please turn OVER to complete evaluation.)

	Strongly Agree	Agree	Disagree	Strongly Disagree
Instructional Methods				
The course is well-paced.	4	3	2	1
The hands-on exercises are an important course component.	4	3	2	1
Course Content				
The information in this course is helpful in understanding how to search TOXNET and other NLM and non-NLM toxicology databases.	4	3	2	1
I would recommend this course to someone who will be searching for toxicology information.	4	3	2	1

Comments about this course:

Comments about databases or TOXNET Search Interface: